BEFORE THE
PUBLIC SERVICE COMMISSION
OF SOUTH CAROLINA

DOCKET NO. 2017-292-WS

In the Matter of:

Application of Carolina Water Service,	**)**
Inc. For Adjustment	**)**
of Rates and Charges and	**)**
Modification of Certain Terms and	**)**
Conditions for the Provision of	**)**
Water and Sewer Service	**)**

Prepared Direct Testimony

of

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Director
ScottMadden, Inc.

On Behalf of

Carolina Water Service, Inc.

February 26, 2018

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I. INTRODUCTION

A. Witness Identification

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Dylan W. D'Ascendis. My business address is 3000 Atrium Way, Suite 241, Mount Laurel, NJ 08054.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am a Director at ScottMadden, Inc.

B. Background and Qualifications

Q. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE AND EDUCATIONAL BACKGROUND.

A. I offer expert testimony on behalf of investor-owned utilities on rate of return issues and class cost of service issues. I also assist in the preparation of rate filings, including but not limited to revenue requirements and original cost and lead/lag studies. I am a graduate of the University of Pennsylvania, where I received a Bachelor of Arts degree in Economic History. I also hold a Master of Business Administration from Rutgers University with a concentration in Finance and International Business, which was conferred with high honors. I am a Certified Rate of Return Analyst ("CRRA") and a Certified Valuation Analyst ("CVA"). My full professional qualifications are provided in Appendix A.

II. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to testify on behalf of Carolina Water Service, Inc. ("CWS" or the "Company") about the appropriate capital structure and corresponding cost rates that the Company should be afforded the opportunity to earn on its jurisdictional rate base.

Q. HAVE YOU PREPARED AN EXHIBIT IN SUPPORT OF YOUR RECOMMENDATION?

A. Yes. I have prepared Exhibit No. __, which consists of Schedules DWD-1 through DWD-8.

Q. WHAT IS YOUR RECOMMENDED COST OF CAPITAL FOR CWS?

A. I recommend that the South Carolina Public Service Commission ("SC PSC" or the "Commission") authorize the Company the opportunity to earn an overall rate of return within a range of 8.60% to 8.86% based on a test year ended December 31, 2017. The ratemaking capital structure consists of 48.11% long-term debt, at an embedded debt cost rate of 6.60%, and 51.89% common equity at my recommended range of common equity cost rates between 10.45% and 10.95%. The overall rate of return is summarized on page 1 of Schedule DWD-1 and in Table 1 below:

Table 1: Summary of Overall Rate of Return

Type of Capital	Ratios	Cost Rate	Weighted Cost Rate
Long-Term Debt	48.11%	6.60%	3.18%
Common Equity	51.89%	10.45% - 10.95%	5.42% - 5.68%
Total	100.00%		8.60% - 8.86%

III. SUMMARY

Q. **PLEASE SUMMARIZE YOUR RECOMMENDED RANGE OF COMMON EQUITY COST RATES.**

A. My recommended range of common equity cost rates between 10.45% and 10.95% is summarized on page 2 of Schedule DWD-1. I have assessed the market-based common equity cost rates of companies of relatively similar, but not necessarily identical, risk to CWS. Using companies of relatively comparable risk as proxies is consistent with the principles of fair rate of return established in the *Hope*[1] and *Bluefield*[2] cases. No proxy group can be identical in risk to any single company, so there must be an evaluation of relative risk between the company and the proxy group to see if it is appropriate to make adjustments to the proxy group's indicated rate of return.

My recommendation results from the application of several cost of common equity models, specifically the Discounted Cash Flow ("DCF") model, the Risk Premium Model ("RPM"), and the Capital Asset Pricing Model ("CAPM"), to the market data of a proxy group of eight water companies ("Utility Proxy Group") whose selection criteria will be discussed below. In addition, I also applied the DCF, RPM, and CAPM to a proxy group

[1] *Federal Power Commission v. Hope Natural Gas Co.*, 320 U.S. 591 (1944).
[2] *Bluefield Water Works Improvement Co. v. Public Serv. Comm'n*, 262 U.S. 679 (1922).

of domestic, non-price regulated companies comparable in total risk to the eight water companies ("Non-Price Regulated Proxy Group").

The results derived from each are as follows:

Table 2: Summary of Common Equity Cost Rate

	Utility Proxy Group
Discounted Cash Flow Model	8.64%
Risk Premium Model	10.69
Capital Asset Pricing Model	10.51
Cost of Equity Models Applied to Comparable Risk, Non-Price Regulated Companies	12.06
Indicated Common Equity Cost Rate Before Adjustment	10.45%
Size Adjustment	0.50
Indicated Common Equity Cost Rate Cost Rate after Adjustment	10.95%
Recommended Range of Common Equity Cost Rates	10.45% - 10.95%

After analyzing the indicated common equity cost rates derived by these models, I conclude that a common equity cost rate of 10.45% for the Company is indicated before any Company-specific adjustment. I then adjusted the indicated common equity cost rate upward by 0.50% to reflect CWS's smaller relative size as compared with the members of the Utility Proxy Group, resulting in a size-adjusted indicated common equity cost rate of 10.95%. Based on these results, I recommend the Commission consider a range of common equity cost rates between 10.45% and 10.95% for use in setting rates for the Company.

IV. GENERAL PRINCIPLES

Q. WHAT GENERAL PRINCIPLES HAVE YOU CONSIDERED IN ARRIVING AT YOUR RECOMMENDED RANGE OF COMMON EQUITY COST RATES?

A. In unregulated industries, the competition of the marketplace is the principal determinant of the price of products or services. For regulated public utilities, regulation must act as a substitute for marketplace competition. Assuring that the utility can fulfill its obligations to the public while providing safe and reliable service at all times requires a level of earnings sufficient to maintain the integrity of presently invested capital. Sufficient earnings also permit the attraction of needed new capital at a reasonable cost, for which the utility must compete with other firms of comparable risk, consistent with the fair rate of return standards established by the U.S. Supreme Court in the previously cited *Hope* and *Bluefield* cases. Consequently, marketplace data must be relied on in assessing a common equity cost rate appropriate for ratemaking purposes. Just as the use of the market data for the proxy group adds reliability to the informed expert judgment used in arriving at a recommended common equity cost rate, the use of multiple generally accepted common equity cost rate models also adds reliability and accuracy when arriving at a recommended common equity cost rate.

A. Business Risk

Q. PLEASE DEFINE BUSINESS RISK AND EXPLAIN WHY IT IS IMPORTANT TO THE DETERMINATION OF A FAIR RATE OF RETURN.

A. Business risk is the riskiness of a company's common stock without the use of debt and/or preferred capital. Examples of such general business risks faced by all utilities (*i.e.*, electric, natural gas distribution, and water) include size, the quality of management, the

regulatory environment in which they operate, customer mix, and concentration of customers, service territory growth, and capital intensity. All of these have a direct bearing on earnings.

Consistent with the basic financial principle of risk and return, business risk is important to the determination of a fair rate of return because the higher the level of risk, the higher the rate of return investors demand.

Q. **WHAT BUSINESS RISKS DO THE WATER AND WASTEWATER INDUSTRIES FACE IN GENERAL?**

A. Water and wastewater utilities have an ever-increasing responsibility to be stewards of the environment from which supplies are drawn in order to preserve and protect essential natural resources of the United States. Compliance with the Safe Water Drinking Act and response to continuous monitoring by the Environmental Protection Agency ("EPA") and state and local governments of the water supply for potential contaminants and their resultant regulations directly result in increased environmental stewardship by water utilities. This, plus aging infrastructure, necessitate additional capital investment in the distribution and treatment of water, exacerbating the pressure on free cash flows arising from increased capital expenditures for infrastructure repair and replacement. The significant amount of capital investment and, hence, high capital intensity, is a major risk factor for the water and wastewater utility industry.

Value Line Investment Survey ("*Value Line*") observes the following about the water utility industry:

> One of the most positive attributes of the water industry is that companies and regulatory authorities usually work together reasonably well. This isn't always the case in other domestic regulated markets, such as electricity. In general, regulators realize

> that the U.S. went decades without plowing enough capital back into the pipelines and wastewater facilities. Now they realize that a huge amount of funds have to be directed toward fixing their systems.
>
> We cannot underestimate the importance of a positive regulatory climate. Essentially, they determine a utility's allowed return on equity. Should there be a sea change in this area, it would greatly impact this group in our opinion.[3]

The water and wastewater industries also experience low depreciation rates. Depreciation rates are one of the principal sources of internal cash flows for all utilities (through a utility's depreciation expense), and are vital to a company to fund ongoing replacements and repairs of the system. Water / wastewater utilities' assets have long lives, and therefore have long capital recovery periods. As such, they face greater risk due to inflation, which results in a higher replacement cost per dollar of net plant.

Substantial capital expenditures, as noted by *Value Line,* will require significant financing. The three sources of financing typically used are debt, equity (common and preferred), and cash flow. All three are intricately linked to the opportunity to earn a sufficient rate of return as well as the ability to achieve that return. Consistent with *Hope* and *Bluefield*, the return must be sufficient to maintain credit quality as well as enable the attraction of necessary new capital, be it debt or equity capital. If unable to raise debt or equity capital, the utility must turn to either retained earnings or free cash flow,[4] both of which are directly linked to earning a sufficient rate of return. The level of free cash flow represents a company's ability to meet the needs of its debt and equity holders. If either retained earnings or free cash flow is inadequate, it will be nearly impossible for the utility to attract the needed new capital to invest in new infrastructure to ensure quality service to

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3 *Value Line Investment Survey*, October 13, 2017.

4 Free Cash Flow = Operating Cash Flow (funds from operations) minus Capital Expenditures.

its customers. An insufficient rate of return can be financially devastating for utilities and a public safety issue for their customers.

The water and wastewater utility industry's high degree of capital intensity and low depreciation rates, coupled with the need for substantial infrastructure capital spending, require regulatory support in the form of adequate and timely rate relief, particularly a sufficient authorized return on common equity, so that the industry can successfully meet the challenges it faces.

B. Financial Risk

Q. PLEASE DEFINE FINANCIAL RISK AND EXPLAIN WHY IT IS IMPORTANT TO THE DETERMINATION OF A FAIR RATE OF RETURN.

A. Financial risk is the additional risk created by the introduction of debt and preferred stock into the capital structure. The higher the proportion of debt and preferred stock in the capital structure, the higher the financial risk (*i.e.* likelihood of default). Therefore, consistent with the basic financial principle of risk and return, investors demand a higher common equity return as compensation for bearing higher default risk.

Q. CAN BOND AND CREDIT RATINGS BE A PROXY FOR THE COMBINED BUSINESS AND FINANCIAL RISKS (I.E., INVESTMENT RISK OF AN ENTERPRISE)?

A. Yes, similar bond ratings/issuer credit ratings reflect, and are representative of, similar combined business and financial risks (*i.e.*, total risk) faced by bond investors.[5] Although

[5] Risk distinctions within S&P's bond rating categories are recognized by a plus or minus, i.e., within the A category, an S&P rating can be at A+, A, or A-. Similarly, risk distinctions for Moody's ratings are distinguished by numerical rating gradations, i.e., within the A category, a Moody's rating can be A1, A2 and A3.

specific business or financial risks may differ between companies, the same bond/credit rating indicates that the combined risks are roughly similar, albeit not necessarily equal, as the purpose of the bond/credit rating process is to assess credit quality or credit risk and not common equity risk.

Q. **THAT BEING SAID, DO RATING AGENCIES REFLECT COMPANY SIZE IN THEIR BOND RATINGS?**

A. No. Neither S&P nor Moody's have minimum company size requirements for any given rating level. This means, all else equal, a relative size analysis needs to be conducted for companies with similar bond ratings.

V. CAPITAL STRUCTURE

Q. **WHAT CAPITAL STRUCTURE RATIOS DO YOU RECOMMEND BE EMPLOYED IN DEVELOPING AN OVERALL FAIR RATE OF RETURN APPROPRIATE FOR THE COMPANY?**

A. I recommend the use of a ratemaking capital structure consisting of 48.11% long-term debt and 51.89% common equity as shown on page 1 of Schedule DWD-1. This capital structure is based on a test year capital structure for Utilities, Inc., CWS's parent company, ended December 31, 2017.

Q. **HOW DOES YOUR PROPOSED RATEMAKING COMMON EQUITY RATIO OF 51.89% FOR CWS COMPARE WITH THE TOTAL EQUITY RATIOS MAINTAINED BY THE COMPANIES IN YOUR UTILITY PROXY GROUP?**

A. My proposed ratemaking common equity ratio of 51.89% for CWS is reasonable and consistent with the range of total equity ratios maintained, on average, by the companies

in the Utility Proxy Group on which I base my recommended common equity cost rate. As shown on page 2 of Schedule DWD-2, the common equity ratios of the Utility Proxy Group range from 45.17% to 60.60%, with a midpoint of 52.89% and an average of 53.75% in 2016. The equity ratio, on average, maintained by the Utility Proxy Group is higher than the equity ratio requested by the Company.

In my opinion, a capital structure consisting of 48.11% long-term debt and 51.89% total equity is appropriate for ratemaking purposes for CWS in the current proceeding because it is comparable, but conservative to the average capital structure ratios (based on total permanent capital) maintained, on average, by the water companies in the Utility Proxy Group on whose market data I base my recommended common equity cost rate.

Q. WHAT COST RATE FOR LONG-TERM DEBT IS MOST APPROPRIATE FOR USE IN A COST OF CAPITAL DETERMINATION FOR CWS?

A. A long-term debt cost rate of 6.60% is reasonable and appropriate as it is based on a test year of Utilities, Inc.'s ("UI") long-term debt outstanding ending December 31, 2017.

VI. CAROLINA WATER SERVICE, INC. AND UTILITY PROXY GROUP SELECTION

Q. HAVE YOU REVIEWED FINANCIAL DATA FOR CWS?

A. Yes. CWS is the surviving entity after the merger of the four UI operating subsidiaries in South Carolina.[6] The merged company serves approximately 26,400 water and sewer customers throughout South Carolina. CWS is a wholly-owned subsidiary of UI, which is a wholly-owned subsidiary of Corix, Inc. CWS's common stock is not publicly traded.

[6] The four merged companies are as follows: Carolina Water Service, Inc., United Utility Companies, Inc., Utility Services of South Carolina, and Southland Utilities, Inc.

Q. **PLEASE EXPLAIN HOW YOU CHOSE YOUR PROXY GROUP OF EIGHT WATER COMPANIES.**

A. The basis of selection for the Utility Proxy Group was to select those companies which meet the following criteria:

(i) They are included in the Water Utility Group of *Value Line's Standard Edition* (October 13, 2017);

(ii) They have 70% or greater of 2016 total operating income and 70% or greater of 2016 total assets attributable to regulated water operations;

(iii) At the time of the preparation of this testimony, they had not publicly announced that they were involved in any major merger or acquisition activity (*i.e.*, one publicly-traded utility merging with or acquiring another);

(iv) They have not cut or omitted their common dividends during the five years ending 2016 or through the time of the preparation of this testimony;

(v) They have *Value Line* and Bloomberg adjusted betas;

(vi) They have a positive *Value Line* five-year dividends per share ("DPS") growth rate projection; and

(vii) They have *Value Line*, Reuters, Zacks, or Yahoo! Finance consensus five-year earnings per share ("EPS") growth rate projections.

The following eight companies met these criteria: American States Water Co., American Water Works Co., Inc., Aqua America, Inc., California Water Service Group, Connecticut Water Service, Inc., Middlesex Water Co., SJW Corp., and York Water Co.

Q. **PLEASE DESCRIBE SCHEDULE DWD-2, PAGE 1.**

A. Page 1 of Schedule DWD-2 contains comparative capitalization and financial statistics for the eight water companies identified above for the years 2012 to 2016.

During the five-year period ending 2016, the historically achieved average earnings rate on book common equity for the group averaged 10.56%. The average common equity ratio based on total permanent capital (excluding short-term debt) was 53.13%, and the average dividend payout ratio was 56.73%.

Total debt to earnings before interest, taxes, depreciation, and amortization ("EBITDA") for the years 2012 to 2016 ranges between 3.40 and 3.83, with an average of 3.63. Funds from operations to total debt range from 20.86% to 25.95%, with an average of 23.18%.

VII. COMMON EQUITY COST RATE MODELS

Q. **ARE YOUR COST OF COMMON EQUITY MODELS MARKET-BASED MODELS?**

A. Yes. The DCF model is market-based because market prices are used in developing the dividend yield component of the model. The RPM is market-based because the bond ratings and expected bond yields used in the application of the RPM reflect the market's assessment of bond/credit risk. In addition, the use of beta coefficients (β) to determine the equity risk premium reflects the market's assessment of market/systematic risk since beta coefficients are derived from regression analyses of market prices. The Predictive Risk Premium Model ("PRPM") uses monthly market returns in addition to expectations of the risk-free rate. The CAPM is market-based for many of the same reasons that the RPM is market-based (*i.e.*, the use of expected bond yields and betas). Selection of the

comparable risk non-price regulated companies is market-based because it is based on statistics which result from regression analyses of market prices and reflect the market's assessment of total risk.

A. Discounted Cash Flow Model

Q. WHAT IS THE THEORETICAL BASIS OF THE DCF MODEL?

A. The theory underlying the DCF model is that the present value of an expected future stream of net cash flows during the investment holding period can be determined by discounting those cash flows at the cost of capital, or the investors' capitalization rate. DCF theory indicates that an investor buys a stock for an expected total return rate, which is derived from cash flows received in the form of dividends plus appreciation in market price (the expected growth rate). Mathematically, the dividend yield on market price plus a growth rate equals the capitalization rate, *i.e.*, the total common equity return rate expected by investors.

Q. WHICH VERSION OF THE DCF MODEL DO YOU USE?

A. I use the single-stage constant growth DCF model.

Q. PLEASE DESCRIBE THE DIVIDEND YIELD YOU USED IN YOUR APPLICATION OF THE DCF MODEL.

A. The unadjusted dividend yields are based on the proxy companies' dividends as of October 13, 2017, divided by the average of closing market prices for the 60 trading days ending October 13, 2017.[7]

[7] See Schedule DWD-3, page 1, column 1.

Q. **PLEASE EXPLAIN YOUR ADJUSTMENT TO THE DIVIDEND YIELD.**

A. Because dividends are paid periodically (quarterly), as opposed to continuously (daily), an adjustment must be made to the dividend yield. This is often referred to as the discrete, or the Gordon Periodic, version of the DCF model.

DCF theory calls for the use of the full growth rate, or D_1, in calculating the dividend yield component of the model. Since the various companies in the Utility Proxy Group increase their quarterly dividend at various times during the year, a reasonable assumption is to reflect one-half the annual dividend growth rate in the dividend yield component, or $D_{1/2}$. Because the dividend should be representative of the next twelve-month period, my adjustment is a conservative approach that does not overstate the dividend yield. Therefore, the actual average dividend yields in Column 1 on page 1 of Schedule DWD-3 have been adjusted upward to reflect one-half the average projected growth rate shown in Column 6.

Q. **PLEASE EXPLAIN THE BASIS OF THE GROWTH RATES YOU APPLY TO THE UTILITY PROXY GROUP IN YOUR DCF MODEL.**

A. Investors with more limited resources than institutional investors are likely to rely on widely available financial information services, such as *Value Line*, Reuters, Zacks, and Yahoo! Finance. Investors realize that analysts have significant insight into the dynamics of the industries and individual companies they analyze, as well as companies' abilities to effectively manage the effects of changing laws and regulations and ever-changing economic and market conditions. For these reasons, I use analysts' five-year forecasts of earnings per share ("EPS") growth in my DCF analysis.

Over the long run, there can be no growth in dividends per share ("DPS") without growth in EPS. Security analysts' earnings expectations have a more significant influence on market prices than dividend expectations. Thus, the use of earnings growth rates in a DCF analysis provides a better match between investors' market price appreciation expectations and the growth rate component of the DCF.

Q. **PLEASE SUMMARIZE THE DCF MODEL RESULTS.**

A. As shown on page 1 of Schedule DWD-3, the mean result of the application of the single-stage DCF model is 8.86%, the median result is 8.42%, and the average of the two is 8.64% for the Utility Proxy Group. In arriving at a conclusion for the DCF-indicated common equity cost rate for the Utility Proxy Group, I have relied on an average of the mean and the median results of the DCF. This approach takes into consideration all of the proxy companies' results while mitigating the high and low outliers of those individual results.

B. <u>The Risk Premium Model</u>

Q. **PLEASE DESCRIBE THE THEORETICAL BASIS OF THE RPM.**

A. The RPM is based on the fundamental financial principle of risk and return, namely, that investors require greater returns for bearing greater risk. The RPM recognizes that common equity capital has greater investment risk than debt capital, as common equity shareholders are behind debt holders in any claim on a company's assets and earnings. As a result, investors require higher returns from common stocks than from investment in bonds, to compensate them for bearing the additional risk.

While it is possible to directly observe bond returns and yields, investors' required common equity return cannot be directly determined or observed. According to RPM theory, one can estimate a common equity risk premium over bonds (either historically or

prospectively), and use that premium to derive a cost rate of common equity. The cost of common equity equals the expected cost rate for long-term debt capital, plus a risk premium over that cost rate, to compensate common shareholders for the added risk of being unsecured and last-in-line for any claim on the corporation's assets and earnings in the event of a liquidation.

Q. **PLEASE EXPLAIN HOW YOU DERIVED YOUR INDICATED COST OF COMMON EQUITY BASED ON THE RPM.**

A. I relied on the results of the application of two risk premium methods. The first method is the PRPM, while the second method is a risk premium model using a total market approach.

Q. **PLEASE EXPLAIN THE PRPM.**

A. The PRPM, published in the *Journal of Regulatory Economics ("JRE"),*[8] was developed from the work of Robert F. Engle, who shared the Nobel Prize in Economics in 2003 "for methods of analyzing economic time series with time-varying volatility ("ARCH")".[9] Engle found that volatility changes over time and is related from one period to the next, especially in financial markets. Engle discovered that the volatility in prices and returns clusters over time and is therefore highly predictable and can be used to predict future levels of risk and risk premiums.

The PRPM estimates the risk / return relationship directly, as the predicted equity risk premium is generated by the prediction of volatility or risk. The PRPM is not based

[8] Autoregressive conditional heteroscedasticity. See "A New Approach for Estimating the Equity Risk Premium for Public Utilities", Pauline M. Ahern, Frank J. Hanley and Richard A. Michelfelder, Ph.D. The Journal of Regulatory Economics (December 2011), 40:261-278.

[9] www.nobelprize.org.

on an estimate of investor behavior, but rather on the evaluation of the results of that behavior (*i.e.*, the variance of historical equity risk premiums).

The inputs to the model are the historical returns on the common shares of each company in the Utility Proxy Group minus the historical monthly yield on long-term U.S. Treasury securities through September 2017. Using a generalized form of ARCH, known as GARCH, I calculate each Utility Proxy Group company's projected equity risk premium using Eviews© statistical software. When the GARCH Model is applied to the historical return data, it produces a predicted GARCH variance series[10] and a GARCH coefficient[11]. Multiplying the predicted monthly variance by the GARCH coefficient and annualizing it[12] produces the predicted annual equity risk premium. I then add the forecasted 30-year U.S. Treasury Bond yield, 3.58%[13], to each company's PRPM-derived equity risk premium to arrive at an indicated cost of common equity. The 30- year Treasury yield is a consensus forecast derived from the *Blue Chip Financial Forecasts ("Blue Chip")*[14]. The mean PRPM indicated common equity cost rate for the Utility Proxy Group is 11.48%, the median is 11.41%, and the average of the two is 11.45%. Consistent with my reliance on the average of the median and mean results of the DCF, I will rely on the average of the mean and median results of the Utility Proxy Group PRPM to calculate a cost of common equity rate of 11.45%.

10 Illustrated on Columns 1 and 2 of page 2 of Schedule DWD-4.
11 Illustrated on Column 4 of page 2 of Schedule DWD-4.
12 Annualized Return = (1+Monthly Return)^12 - 1
13 See column 6 of page 2 of Schedule DWD-4.
14 *Blue Chip Financial Forecasts*, October 1, 2017 at p. 2 and June 1, 2017 at p. 14.

Q. **PLEASE EXPLAIN THE TOTAL MARKET APPROACH RPM.**

A. The total market approach RPM adds a prospective public utility bond yield to an average of: 1) an equity risk premium that is derived from a beta-adjusted total market equity risk premium, and 2) an equity risk premium based on the S&P Utilities Index.

Q. **PLEASE EXPLAIN THE BASIS OF THE EXPECTED BOND YIELD OF 4.92% APPLICABLE TO THE UTILITY PROXY GROUP.**

A. The first step in the total market approach RPM analysis is to determine the expected bond yield. Because both ratemaking and the cost of capital (including common equity cost rate) are prospective in nature, a prospective yield on similarly-rated long-term debt is essential. I rely on a consensus forecast of about 50 economists of the expected yield on Aaa-rated corporate bonds for the six calendar quarters ending with the first calendar quarter of 2019 and the long-term projections for 2019 to 2023 and 2024 to 2028 from Blue Chip. As shown on Line No. 1 of page 3 of Schedule DWD-4, the average expected yield on Moody's Aaa-rated corporate bonds is 4.61%. In order to derive an expected yield on A2 rated-public utility bonds, I make an upward adjustment of 0.25%, which represents a recent spread between Aaa corporate bonds and A2-rated public utility bonds, in order to adjust the expected Aaa corporate bond yield to an equivalent Moody's A2-rated public utility bond.[15] Adding that recent 0.25% spread to the expected Aaa corporate bond yield of 4.61% results in an expected A2 public utility bond of 4.86%.

Since the Utility Proxy Group's average Moody's long-term issuer rating is A2/A3, another adjustment to the expected A2 public utility bond yield is needed to reflect the difference in bond ratings. An upward adjustment of 0.06%, which represents one-sixth of

15 As shown on Line No. 2 and explained in note 2 of page 3 of Schedule DWD-4.

a recent spread between A2 and A3 public utility bond yields, is necessary to make the A2 prospective bond yield applicable to an A2/A3 public utility bond.[16] Adding the 0.06% to the 4.86% prospective A2 public utility bond yield results in a 4.92% expected bond yield for the Utility Proxy Group.

Q. **PLEASE EXPLAIN THE DERIVATION OF THE BETA-DERIVED EQUITY RISK PREMIUM.**

A. The components of the beta derived risk premium model are: 1) An expected market equity risk premium over corporate bonds, and 2) the beta coefficient. The derivation of the beta-derived equity risk premium that I apply to the Utility Proxy Group is shown on lines 1 through 11 of page 8 of Schedule DWD-4. The total beta-derived equity risk premium I apply is based on an average of: 1) Historical data-based equity risk premiums; 2) *Value Line*-based equity risk premiums; and 3) Bloomberg-based equity risk premium. Each of these is described in turn.

Q. **HOW DID YOU DERIVE A MARKET EQUITY RISK PREMIUM BASED ON LONG-TERM HISTORICAL DATA?**

A. To derive a historical market equity risk premium, I used the most recent holding period returns for the large company common stocks from the 2017 Stocks, Bonds, Bills, and Inflation ("SBBI") Yearbook ("SBBI – 2017")[17] less the average historical yield on Moody's Aaa/Aa-rated corporate bonds for the period 1928 to 2016. The use of holding period returns over a very long period of time is appropriate because it is consistent with

16 As shown on Line No. 4 and explained in note 3 on page 3 of Schedule DWD-4.
17 SBBI Appendix A Tables: Morningstar Stocks, Bonds, Bills, & Inflation 1926-2016.

the long-term investment horizon presumed by investing in a going concern, *i.e.*, a company expected to operate in perpetuity.

SBBI's long-term arithmetic mean monthly total return rate on large company common stocks was 11.69% and the long-term arithmetic mean monthly yield on Moody's Aaa/Aa-rated corporate bonds was 6.13%.[18] As shown on line 1 of page 8 of Schedule DWD-4, subtracting the mean monthly bond yield from the total return on large company stocks results in a long-term historical equity risk premium of 5.56%.

I used the arithmetic mean monthly total return rates for the large company stocks and yields (income returns) for the Moody's Aaa/Aa corporate bonds, because they are appropriate for the purpose of estimating the cost of capital as noted in SBBI – 2017.[19] The use of the arithmetic mean return rates and yields is appropriate because historical total returns and equity risk premiums provide insight into the variance and standard deviation of returns needed by investors in estimating future risk when making a current investment. If investors relied on the geometric mean of historical equity risk premiums, they would have no insight into the potential variance of future returns because the geometric mean relates the change over many periods to a constant rate of change, thereby obviating the year-to-year fluctuations, or variance, which is critical to risk analysis.

Q. **PLEASE EXPLAIN THE DERIVATION OF THE REGRESSION-BASED MARKET EQUITY RISK PREMIUM.**

A. To derive the regression analysis-derived market equity risk premium of 7.37%, shown on line 2 of page 8 of Schedule DWD-4, I used the same monthly annualized total returns on

[18] As explained in note 1 on page 8 of Schedule DWD-4.
[19] SBBI – 2017, at 10-22.

large company common stocks relative to the monthly annualized yields on Moody's Aaa/Aa corporate bonds as mentioned above. The relationship between interest rates and the market equity risk premium was modeled using the observed monthly market equity risk premium as the dependent variable, and the monthly yield on Moody's Aaa/Aa corporate bonds as the independent variable. I used a linear Ordinary Least Squares ("OLS") regression, in which the market equity risk premium is expressed as a function of the Moody's Aaa/Aa corporate bonds yield:

$$RP = \alpha + \beta\ (R_{Aaa/Aa})$$

Q. **PLEASE EXPLAIN THE DERIVATION OF A PRPM EQUITY RISK PREMIUM.**

A. I used the same PRPM approach described previously to develop another equity risk premium estimate. The inputs to the model are the historical monthly returns on large company common stocks minus the monthly yields on Aaa/Aa corporate bonds during the period from January 1928 through September 2017.[20] Using the previously discussed generalized form of ARCH, known as GARCH, the projected equity risk premium is determined using Eviews© statistical software. The resulting PRPM predicted market equity risk premium is 5.91%.[21]

The average historical data-based equity risk premium is 6.28%, which is shown on line 4 of page 8 of Schedule DWD-4.

[20] Data from January 1926-December 2016 is from SBBI – 2017. Data from January – September 2017 is from Bloomberg Professional Services.

[21] Shown on Line No. 3 of page 8 of Schedule DWD-4.

Q. **PLEASE EXPLAIN THE DERIVATION OF A PROJECTED EQUITY RISK PREMIUM BASED ON VALUE LINE DATA FOR YOUR RPM ANALYSIS.**

A. As noted previously, because both ratemaking and the cost of capital, including the cost rate of common equity, are prospective, a prospective market equity risk premium is essential. The derivation of the forecasted or prospective market equity risk premium can be found in note 4 on page 8 of Schedule DWD-4. Consistent with my calculation of the dividend yield component in my DCF analysis, this prospective market equity risk premium is derived from an average of the three- to five-year median market price appreciation potential by *Value Line* for the thirteen weeks ending October 13, 2017, plus an average of the median estimated dividend yield for the common stocks of the 1,700 firms covered in *Value Line*'s Standard Edition.[22]

The average median expected price appreciation is 33%, which translates to a 7.39% annual appreciation, and, when added to the average of *Value Line's* median expected dividend yields of 2.06%, equates to a forecasted annual total return rate on the market of 9.45%. The forecasted Aaa bond yield of 4.61% is deducted from the total market return of 9.45%, resulting in an equity risk premium of 4.84%, shown on page 8, line 5 of Schedule DWD-4.

Q. **PLEASE EXPLAIN THE DERIVATION OF AN EQUITY RISK PREMIUM BASED ON THE S&P 500 COMPANIES.**

A. Using data from *Value Line*, I calculate an expected total return on the S&P 500 using expected dividend yields and long-term growth estimates as a proxy for capital appreciation. The expected total return for the S&P 500 is 14.30%. Subtracting the

[22] As explained in detail in page 2, note 1 of Schedule DWD-5.

prospective yield on Aaa Corporate bonds of 4.61% results in an 9.69% projected equity risk premium.

The average *Value Line*-based Equity risk premium is 7.26%, which is shown on Line No. 7 on page 8 of Schedule DWD-4.

Q. **PLEASE EXPLAIN THE DERIVATION OF AN EQUITY RISK PREMIUM BASED ON BLOOMBERG DATA.**

A. Using data from Bloomberg Professional Services, I calculate an expected total return on the S&P 500 using expected dividend yields and long-term growth estimates as a proxy for capital appreciation, identical to the method described above. The expected total return for the S&P 500 is 13.92%. Subtracting the prospective yield on Aaa Corporate bonds of 4.61% results in a 9.31% projected equity risk premium.

Q. **WHAT IS YOUR CONCLUSION OF A BETA-DERIVED EQUITY RISK PREMIUM FOR USE IN YOUR RPM ANALYSIS?**

A. I give equal weight to equity risk premiums based on each source, historical, *Value Line*, and Bloomberg in arriving at my conclusion of 7.62%.[23]

After calculating the average market equity risk premium of 7.62%, I adjust it by beta to account for the risk of the Utility Proxy Group. As discussed below, the beta coefficient is a meaningful measure of prospective relative risk to the market as a whole, and is a logical means by which to allocate a company's or proxy group's share of the market's total equity risk premium, relative to corporate bond yields. As shown on page 1 of Schedule DWD-5, the average of the mean and median beta coefficient for the Utility

[23] 7.62% = (6.28% + 7.26% + 9.31%)/3. See Line No. 9 on page 8 of Schedule DWD-4.

Proxy Group is 0.77. Multiplying the beta coefficient of the Utility Proxy Group of 0.77 by the market equity risk premium of 7.62% results in a beta-adjusted equity risk premium of 5.87% for the Utility Proxy Group.

Q. **HOW DID YOU DERIVE THE EQUITY RISK PREMIUM BASED ON THE S&P UTILITY INDEX AND MOODY'S A-RATED PUBLIC UTILITY BONDS?**

A. I estimate three equity risk premiums based S&P Utility Index holding returns, and two equity risk premiums based on the expected returns of the S&P Utilities Index, using *Value Line* and Bloomberg data, respectively. Turning first to the S&P Utility Index holding period returns, I derive a long-term monthly arithmetic mean equity risk premium between the S&P Utility Index total returns of 10.57% and monthly A-rated public utility bond yields of 6.61% from 1928 to 2016 to arrive at an equity risk premium of 3.96%.[24] I then use the same historical data to derive an equity risk premium of 5.59% based on a regression of the monthly equity risk premiums. The final S&P Utility Index holding period equity risk premium involves applying the PRPM using the historical monthly equity risk premiums from January 1928 to September 2017 to arrive at a PRPM-derived equity risk premium of 3.96% for the S&P Utility Index. The average of the three S&P Utilities Index holding return equity risk premiums is 4.50%.

I then derive expected total returns on the S&P Utilities Index of 9.06% and 8.60% using data from *Value Line* and Bloomberg Professional Services, respectively, and subtract the prospective A2-rated public utility bond yield (4.86%[25]), which results in risk premiums of 4.20% and 3.74%, respectively. As with the market equity risk premiums, I

24 As shown on Line No. 1 of page 12 of Schedule DWD-4.
25 Derived on Line No. 3 of page 3 of Schedule DWD-4.

average the risk premium based on each source (*i.e.*, Historical, *Value Line*, and Bloomberg) to arrive at my utility-specific equity risk premium of 4.15%.[26]

Q. **WHAT IS YOUR CONCLUSION OF AN EQUITY RISK PREMIUM FOR USE IN YOUR TOTAL MARKET APPROACH RPM ANALYSIS?**

A. The equity risk premium I apply to the Utility Proxy Group is 5.01%, which is the average of the beta-derived and the S&P utility equity risk premiums of 5.87% and 4.15%, respectively.[27]

Q. **WHAT IS THE INDICATED RPM COMMON EQUITY COST RATE BASED ON THE TOTAL MARKET APPROACH?**

A. As shown on Line No. 7 of Schedule DWD-4, page 3, I calculate a common equity cost rate of 9.93% for the Utility Proxy Group based on the total market approach of the RPM.

Q. **WHAT ARE THE RESULTS OF YOUR APPLICATION OF THE PRPM AND THE TOTAL MARKET APPROACH RPM?**

A. As shown on page 1 of Schedule DWD-4, the indicated RPM-derived common equity cost rate is 10.69%, which gives equal weight to the PRPM (11.45%) and the adjusted market approach results (9.93%).

C. <u>The Capital Asset Pricing Model</u>

Q. **PLEASE EXPLAIN THE THEORETICAL BASIS OF THE CAPM.**

A. CAPM theory defines risk as the co-variability of a security's returns with the market's returns as measured by the beta coefficient (β). A beta coefficient less than 1.0 indicates

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26 4.15% = (4.50% + 4.20% + 3.74%)/3.

27 As shown on page 7 of Schedule DWD-4.

lower variability than the market as a whole, while a beta coefficient greater than 1.0 indicates greater variability than the market.

The CAPM assumes that all other risk (*i.e.*, all non-market or unsystematic risk) can be eliminated through diversification. The risk that cannot be eliminated through diversification is called market, or systematic, risk. In addition, the CAPM presumes that investors require compensation only for systematic risk, which is the result of macroeconomic and other events that affect the returns on all assets. The model is applied by adding a risk-free rate of return to a market risk premium, which is adjusted proportionately to reflect the systematic risk of the individual security relative to the total market as measured by the beta coefficient. The traditional CAPM model is expressed as:

$$R_s = R_f + \beta(R_m - R_f)$$

Where:

R_s	=	Return rate on the common stock
R_f	=	Risk-free rate of return
R_m	=	Return rate on the market as a whole
β	=	Adjusted beta coefficient (volatility of the security relative to the market as a whole)

Numerous tests of the CAPM have measured the extent to which security returns and beta coefficients are related as predicted by the CAPM, confirming its validity. The empirical CAPM ("ECAPM") reflects the reality that while the results of these tests support the notion that the beta coefficient is related to security returns, the empirical Security Market Line ("SML") described by the CAPM formula is not as steeply sloped as the predicted SML.[28] In view of theory and practical research, I have applied both the

[28] Roger A. Morin, New Regulatory Finance (Public Utility Reports, Inc., 2006), at p. 175.

traditional CAPM and the ECAPM to the companies in the Utility Proxy Group and averaged the results.

Q. WHAT BETA COEFFICIENTS DID YOU USE IN YOUR CAPM ANALYSIS?

A. With respect to the beta coefficient, I considered two methods of calculation: the average of the Beta coefficients of the Utility Proxy Group companies reported by Bloomberg Professional Services, and the average of the Beta coefficients of the Utility Proxy Group companies as reported by *Value Line*. While both of those services adjust their calculated (or "raw") Beta coefficients to reflect the tendency of the Beta coefficient to regress to the market mean of 1.00, *Value Line* calculates the Beta coefficient over a five-year period, while Bloomberg's calculation is based on two years of data.

Q. PLEASE DESCRIBE YOUR SELECTION OF A RISK-FREE RATE OF RETURN.

A. As shown in column 5 on page 1 of Schedule DWD-5, the risk-free rate adopted for both applications of the CAPM is 3.58%. This risk-free rate of 3.58% is based on the average of the *Blue Chip* consensus forecast of the expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the first calendar quarter of 2019 and long-term projections for the years 2019 to 2023 and 2024 to 2028.

Q. WHY IS THE YIELD ON LONG-TERM U.S. TREASURY BONDS APPROPRIATE FOR USE AS THE RISK-FREE RATE?

A. The yield on long-term U.S. Treasury Bonds is almost risk-free and its term is consistent with the long-term cost of capital to public utilities measured by the yields on A-rated public utility bonds; the long-term investment horizon inherent in utilities' common stocks; and the long-term life of the jurisdictional rate base to which the allowed fair rate of return

(*i.e.*, cost of capital) will be applied. In contrast, short-term U.S. Treasury yields are more volatile and largely a function of Federal Reserve monetary policy.

Q. **PLEASE EXPLAIN THE ESTIMATION OF THE EXPECTED RISK PREMIUM FOR THE MARKET USED IN YOUR CAPM ANALYSES.**

A. The basis of the market risk premium is explained in detail in Note 1 on Schedule DWD-5. As discussed previously, the market risk premium is derived from an average of:

1) Historical data-based market risk premiums;

2) *Value Line* data-based market risk premiums; and

3) Bloomberg data-based market risk premium.

The long-term income return on U.S. Government Securities of 5.17% was deducted from the SBBI-2017 monthly historical total market return of 11.97%, which results in an historical market equity risk premium of 6.80%.[29] I applied a linear OLS regression to the monthly annualized historical returns on the S&P 500 relative to historical yields on long-term U.S. Government Securities from SBBI-2017. That regression analysis yielded a market equity risk premium of 8.60%. The PRPM market equity risk premium is 6.69%, and is derived using the PRPM relative to the yields on long-term U.S. Treasury securities from January 1926 through September 2017. The average of the historical data-based market risk premiums is 7.36%.[30]

The *Value Line*-derived forecasted total market equity risk premium is derived by deducting the forecasted risk-free rate of 3.58%, discussed above, from the *Value Line* projected total annual market return of 9.45%, resulting in a forecasted total market equity

29 SBBI – 2017, at Appendix A-1 (1) through .A-1 (3) and Appendix A-7 (19) through A-7 (21).
30 7.36% = (6.80% + 8.60% + 6.69%)/3.

risk premium of 5.87%. The S&P 500 projected market equity risk premium using *Value Line* data is derived by subtracting the projected risk-free rate of 3.58% from the projected total return of the S&P 500 of 14.30%. The resulting market equity risk premium is 10.72%. The average *Value Line* market risk premium is 8.29%.[31]

The S&P 500 projected market equity risk premium using Bloomberg data is derived by subtracting the projected risk-free rate of 3.58% from the projected total return of the S&P 500 of 13.92%. The resulting market equity risk premium is 10.34%.

These three sources (historical, *Value Line*, and Bloomberg), when averaged, result in an average total market equity risk premium of 8.67%.[32]

Q. **WHAT ARE THE RESULTS OF YOUR APPLICATION OF THE TRADITIONAL AND EMPIRICAL CAPM TO THE UTILITY PROXY GROUP?**

A. As shown on page 1 of Schedule DWD-5, the mean result of my CAPM/ECAPM analyses is 10.43%, the median is 10.58%, and the average of the two is 10.51%. Consistent with my reliance on the average of mean and median DCF results discussed above, the indicated common equity cost rate using the CAPM/ECAPM is 10.51%.

D. Common Equity Cost Rates for a Proxy Group of Domestic, Non-Price Regulated Companies Based on the DCF, RPM, and CAPM

Q. **WHY DO YOU ALSO CONSIDER A PROXY GROUP OF DOMESTIC, NON-PRICE REGULATED COMPANIES?**

A. In the *Hope* and *Bluefield* cases, the U.S. Supreme Court did not specify that comparable risk companies had to be utilities. Since the purpose of rate regulation is to be a substitute

31 8.29% = (5.87% + 10.72%)/2.
32 8.67% = (7.36% + 8.29% + 10.34%)/3.

for the competition of the marketplace, non-price regulated firms operating in the competitive marketplace make an excellent proxy if they are comparable in total risk to the Utility Proxy Group being used to estimate the cost of common equity. The selection of such domestic, non-price-regulated competitive firms theoretically and empirically results in a proxy group which is comparable in total risk to the Utility Proxy Group.

Q. **HOW DID YOU SELECT UNREGULATED COMPANIES THAT ARE COMPARABLE IN TOTAL RISK TO THE REGULATED PUBLIC UTILITY PROXY GROUP?**

A. In order to select a proxy group of domestic, non-price regulated companies similar in total risk to the Utility Proxy Group, I relied on the beta coefficients and related statistics derived from *Value Line* regression analyses of weekly market prices over the most recent 260 weeks (*i.e.*, five years). Using these selection criteria results in a proxy group of twenty-eight domestic, non-price regulated firms comparable in total risk to the Utility Proxy Group. Total risk is the sum of non-diversifiable market risk and diversifiable company-specific risks. The criteria used in the selection of the domestic, non-price regulated firms were:

1) They must be covered by *Value Line Investment Survey* (Standard Edition);

2) They must be domestic, non-price regulated companies, *i.e.*, non-utilities;

3) Their beta coefficients must lie within plus or minus two standard deviations of the average unadjusted beta of the Utility Proxy Group; and

4) The residual standard errors of the *Value Line* regressions, which gave rise to the unadjusted beta coefficients, must lie within plus or minus two standard deviations of the average residual standard error of the Utility Proxy Group.

Beta coefficients are a measure of market, or systematic, risk, which is not diversifiable. The residual standard errors of the regressions were used to measure each firm's company-specific, diversifiable risk. Companies that have similar betas and similar residual standard errors resulting from the same regression analyses have similar total investment risk.

Q. **HAVE YOU PREPARED A SCHEDULE WHICH SHOWS THE DATA FROM WHICH YOU SELECTED THE TWENTY-EIGHT DOMESTIC, NON-PRICE REGULATED COMPANIES THAT ARE COMPARABLE IN TOTAL RISK TO THE UTILITY PROXY GROUP?**

A. Yes, the basis of my selection and both proxy groups' regression statistics are shown in Schedule DWD-6.

Q. **DID YOU CALCULATE COMMON EQUITY COST RATES USING THE DCF, RPM, AND CAPM FOR THE NON-PRICE REGULATED PROXY GROUP?**

A. Yes. Because the DCF, RPM, and CAPM have been applied in an identical manner as described above, I will not repeat the details of the rationale and application of each model. One exception is in the application of the RPM, where I did not use public utility-specific equity risk premiums, nor have I applied the PRPM to the individual companies.

Page 2 of Schedule DWD-7 contains the derivation of the DCF cost rates. As shown, the indicated common equity cost rate using the DCF for the Non-Price Regulated Proxy Group comparable in total risk to the Utility Proxy Group, is 13.57%.

Pages 3 through 5 contain the data and calculations that support the 11.91% RPM cost rate. As shown on Line No. 1 of page 3 of Schedule DWD-7, the consensus prospective yield on Moody's Baa rated corporate bonds for the six quarters ending in the

first quarter of 2019, and for the years 2019 to 2023 and 2024 to 2028, is 5.36%.[33] When the beta-adjusted risk premium of 6.55%,[34] relative to the Non-Price Regulated Proxy Group, is added to the prospective Baa2 rated corporate bond yield of 5.36%, the indicated RPM cost rate is 11.91%.

Page 6 contains the inputs and calculations that support my indicated CAPM/ECAPM cost rate of 11.15%.

Q. HOW IS THE COST RATE OF COMMON EQUITY BASED ON THE NON-PRICE REGULATED PROXY GROUP COMPARABLE IN TOTAL RISK TO THE UTILITY PROXY GROUP?

A. As shown on page 1 of Schedule DWD-7, the results of the DCF, RPM, and CAPM, applied to the Non-Price Regulated Proxy Group comparable in total risk to the Utility Proxy Group, are 13.57%, 11.91%, and 11.15%, respectively. The average of the mean and median of these models is 12.06%, which I use as the indicated common equity cost rate for the Non-Price Regulated Proxy Group.

VIII. CONCLUSION OF COMMON EQUITY COST RATE BEFORE ADJUSTMENTS

Q. WHAT IS THE INDICATED COMMON EQUITY COST RATE BEFORE ADJUSTMENTS?

A. Based on the results of the application of multiple cost of common equity models to the Utility Proxy Group and the Non-Price Regulated Proxy Group, the indicated cost of equity before adjustments is 10.45%. I use multiple cost of common equity models as primary tools in arriving at my recommended common equity cost rate, because no single model is

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33 *Blue Chip Financial Forecasts*, October 1, 2017 at p. 2 and June 1, 2017, at p. 14.
34 Derived on page 5 of Schedule DWD-7.

so inherently precise that it can be relied on solely to the exclusion of other theoretically sound models. The use of multiple models adds reliability to the estimation of the common equity cost rate, and the prudence of using multiple cost of common equity models is supported in both the financial literature and regulatory precedent.

Based on these common equity cost rate results, I conclude that a common equity cost rate of 10.45% is reasonable and appropriate for the Company before any adjustment is made for relative risk between the Company and the Utility Proxy Group. The 10.45% indicated ROE is the approximate average of the results produced by my application of the models as explained above.

IX. ADJUSTMENT TO THE COMMON EQUITY COST RATE

A. Size Adjustment

Q. IS THERE A WAY TO QUANTIFY A RELATIVE RISK ADJUSTMENT DUE TO CWS'S SMALL SIZE RELATIVE TO THE PROXY GROUP?

A. Yes. The Company has greater relative risk than the average company in the Utility Proxy Group because of its smaller size compared with the group, as measured by an estimated market capitalization of common equity for CWS (whose common stock is not publicly-traded).

Table 5: Size as Measured by Market Capitalization for the Company and the Utility Proxy Group

	Market Capitalization* ($ Millions)	Times Greater than the Company
CWS	$57.209	
Utility Proxy Group	$3,543.646	61.9x

*From page 1 of Schedule DWD-8.

The Company's estimated market capitalization was at $57.209 million as of October 13, 2017, compared with the market capitalization of the average water company in the Utility Proxy Group of $3.544 billion as of October 13, 2017. The Utility Proxy Group's market capitalization is 61.9 times the size of CWS's estimated market capitalization.

Q. **PLEASE EXPLAIN WHY SIZE HAS A BEARING ON BUSINESS RISK.**

A. Company size is a significant element of business risk for which investors expect to be compensated through higher returns. Generally, smaller companies are less able to cope with significant events that affect sales, revenues, and earnings. For example, smaller companies face more risk exposure to business cycles and economic conditions, both nationally and locally. Additionally, the loss of revenues from a few larger customers would have a greater effect on a small company than on a much larger company with a larger, more diverse, customer base.

Further evidence of the risk effects of size include the fact that investors demand greater returns to compensate for the lack of marketability and liquidity of the securities of smaller firms. For these reasons, the Commission should authorize a cost of common

equity in this proceeding that reflects CWS's relevant risk, including the impact of its small size.

As a result, it is necessary to upwardly adjust the indicated common equity cost rate of 10.45% to reflect CWS's greater risk due to its smaller relative size. The determination is based on the size premiums for portfolios of New York Stock Exchange ("NYSE"), American Stock Exchange ("AMEX"), and NASDAQ listed companies ranked by deciles for the 1926 to 2016 period. The average size premium for the Utility Proxy Group with a market capitalization of $3.545 billion falls in the 5th decile, while CWS's market capitalization of $57.209 million puts the Company in the 10th decile. The size premium spread between the 5th decile and the 10th decile is 4.08%. Even though a 4.08% upward size adjustment is indicated, I apply a size premium of 0.50% to CWS's indicated common equity cost rate.

Q. DID YOU EVALUATE CWS'S PARENT, UTILITIES, INC.'S ESTIMATED MARKET CAPITALIZATION COMPARED TO THE PROXY GROUP?

A. Yes. Even though I do not think it is applicable[35], I looked at Utilities, Inc.'s common equity balance at December 31, 2016. I then adjusted it by the proxy group market-to-book ratio and compared it with the proxy group. Utilities, Inc.'s estimated market capitalization, $699.722 million[36], would fall in between the 8th and 9th deciles, which would indicate a 0.87% size premium over the average proxy group company.

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35 It is Mr. D'Ascendis' opinion that the parent company's size is irrelevant in setting rates for one of its jurisdictional subsidiaries. Regulation is required to look at each operating utility as a stand-alone company since they can only set rates for that particular utility and no other operating subsidiary outside of their jurisdiction.

36 $212.230M x 329.7% = $699.722M

Q. DID YOU EVALUATE OTHER MEASURES OF RELATIVE SIZE BETWEEN CWS AND THE PROXY GROUP?

A. Yes. In order to present a more robust analysis, I compared CWS and the water proxy group using various measures of size as described by Duff and Phelps' 2017 Valuation Yearbook. The measures are listed below:

- Market Value of Common Equity
- Book Value of Common Equity
- Market Value of Invested Capital
- Total Assets
- Total Sales
- Number of Employees

As shown on page 3 of Schedule DWD-8, in all measures, CWS was determined to be smaller than the average water proxy group company with associated size premiums ranging from 1.34% to 3.94%. In view of these results, in my opinion, an upward size adjustment of 0.50% to the indicated cost of common equity is both appropriate and conservative.

Q. WHAT IS THE INDICATED COST OF COMMON EQUITY AFTER YOUR ADJUSTMENT FOR SIZE?

A. After applying the 0.50% size adjustment to the indicated cost of common equity of 10.45%, a size-adjusted cost of common equity of 10.95% results.

X. CONCLUSION OF COMMON EQUITY COST RATE

Q. WHAT IS YOUR RECOMMENDED COST OF COMMON EQUITY FOR CWS?

A. Given the indicated cost of common equity of 10.45% and the size adjusted cost of common equity of 10.95%, I conclude that an appropriate range of common equity cost rates for the Company is from 10.45% to 10.95%.

Q. IS YOUR RECOMMENDED RANGE OF COMMON EQUITY COST RATES REASONABLE FOR CWS?

A. In my opinion, a range of common equity cost rates between 10.45% and 10.95% is both reasonable and conservative, providing CWS with sufficient earnings to enable it to attract necessary new capital.

Q. DOES THAT CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does

scottmadden
MANAGEMENT CONSULTANTS

Appendix A
Professional Qualifications of
Dylan W. D'Ascendis, CRRA, CVA

Summary

Dylan is an experienced consultant and a Certified Rate of Return Analyst (CRRA) and Certified Valuation Analyst (CVA). He has served as a consultant for investor-owned and municipal utilities and authorities for 9 years. Dylan has extensive experience in rate of return analyses, class cost of service, rate design, and valuation for regulated public utilities. He has testified as an expert witness in the subjects of rate of return, cost of service, rate design, and valuation before 13 regulatory commissions in the U.S. and an American Arbitration Association panel.

He also maintains the benchmark index against which the Hennessy Gas Utility Mutual Fund performance is measured. He serves on the Rates and Regulatory Committee of the National Association of Water Companies (NAWC).

Areas of Specialization

- Regulation and Rates
- Utilities
- Mutual Fund Benchmarking
- Capital Market Risk
- Capital Market Risk
- Financial Modeling
- Valuation
- Regulatory Strategy and Rate Case Support
- Rate of Return
- Cost of Service
- Rate Design

Recent Expert Testimony Submission/Appearances

Jurisdiction	*Topic*
Regulatory Commission of Alaska	Return on Common Equity & Capital Structure
New Jersey Board of Public Utilities	Cost of Service, Rate Design
Pennsylvania Public Utility Commission	Return on Common Equity
South Carolina Public Service Commission	Return on Common Equity
American Arbitration Association	Valuation

Recent Assignments

- Provided expert testimony on the cost of capital for ratemaking purposes before numerous state utility regulatory agencies
- Maintains the benchmark index against which the Hennessy Gas Utility Mutual Fund performance is measured
- Sponsored valuation testimony for a large municipal water company in front of an American Arbitration Association Board to justify the reasonability of their lease payments to the City
- Co-authored a valuation report on behalf of a large investor-owned utility company in response to a new state regulation which allowed the appraised value of acquired assets into rate base

Recent Publications and Speeches

- Co-Author of: "The Impact of Decoupling on the Cost of Capital of Public Utilities", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University and Pauline M. Ahern. (Forthcoming)
- "Past is Prologue: Future Test Year", Presentation before the National Association of Water Companies 2017 Southeast Water Infrastructure Summit, May 2, 2017, Savannah, GA.
- Co-author of: "Comparative Evaluation of the Predictive Risk Premium Model™, the Discounted Cash Flow Model and the Capital Asset Pricing Model", co-authored with Richard A. Michelfelder, Ph.D., Rutgers University, Pauline M. Ahern, and Frank J. Hanley, The Electricity Journal, May, 2013.
- "Decoupling: Impact on the Risk and Cost of Common Equity of Public Utility Stocks", before the Society of Utility and Regulatory Financial Analysts: 45th Financial Forum, April 17-18, 2013, Indianapolis, IN.

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Regulatory Commission of Alaska				
Alaska Power Company	07/16	Alaska Power Company	Docket No. TA857-2	Rate of Return
Colorado Public Utilities Commission				
Atmos Energy Corporation	06/17	Atmos Energy Corporation	Docket No. 17AL-0429G	Return on Equity
Delaware Public Service Commission				
Tidewater Utilities, Inc.	11/13	Tidewater Utilities, Inc.	Docket No. 13-466	Capital Structure
Hawaii Public Utilities Commission				
Kaupulehu Water Company	02/18	Kaupulehu Water Company	Docket No. __	Rate of Return
Aqua Engineers, LLC	05/17	Puhi Sewer & Water Company	Docket No. 2017-0118	Cost of Service / Rate Design
Hawaii Resources, Inc.	09/16	Laie Water Company	Docket No. 2016-0229	Cost of Service / Rate Design
Illinois Commerce Commission				
Utility Services of Illinois, Inc.	11/17	Utility Services of Illinois, Inc.	Docket No. 17-1106	Cost of Service / Rate Design
Aqua Illinois, Inc.	04/17	Aqua Illinois, Inc.	Docket No. 17-0259	Rate of Return
Utility Services of Illinois, Inc.	04/15	Utility Services of Illinois, Inc.	Docket No. 14-0741	Rate of Return
Indiana Utility Regulatory Commission				
Aqua Indiana, Inc.	03/16	Aqua Indiana, Inc. Aboite Wastewater Division	Docket No. 44752	Rate of Return
Twin Lakes, Utilities, Inc.	08/13	Twin Lakes, Utilities, Inc.	Docket No. 44388	Rate of Return
Louisiana Public Service Commission				
Louisiana Water Service, Inc.	06/13	Louisiana Water Service, Inc.	Docket No. U-32848	Rate of Return
Massachusetts Department of Public Utilities				
Liberty Utilities	07/15	Liberty Utilities d/b/a New England Natural Gas Company	Docket No. 15-75	Rate of Return
Missouri Public Service Commission				
Indian Hills Utility Operating Company, Inc.	10/17	Indian Hills Utility Operating Company, Inc.	Case No. SR-2017-0259	Rate of Return
Raccoon Creek Utility Operating Company, Inc.	09/16	Raccoon Creek Utility Operating Company, Inc.	Docket No. SR-2016-0202	Rate of Return
New Jersey Board of Public Utilities				

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MANAGEMENT CONSULTANTS

Appendix A
Professional Qualifications of
Dylan W. D'Ascendis, CRRA, CVA

SPONSOR	DATE	CASE/APPLICANT	DOCKET NO.	SUBJECT
Middlesex Water Company	10/17	Middlesex Water Company	Docket No. WR1710xxxx	Rate of Return
Middlesex Water Company	03/15	Middlesex Water Company	Docket No. WR15030391	Rate of Return
The Atlantic City Sewerage Company	10/14	The Atlantic City Sewerage Company	Docket No. WR14101263	Cost of Service / Rate Design
Middlesex Water Company	11/13	Middlesex Water Company	Docket No. WR1311059	Capital Structure
Public Utilities Commission of Ohio				
Aqua Ohio, Inc.	05/16	Aqua Ohio, Inc.	Docket No. 16-0907-WW-AIR	Rate of Return
Pennsylvania Public Utility Commission				
Columbia Water Company	09/17	Columbia Water Company	Docket No. R-2017-2598203	Rate of Return
Veolia Energy Philadelphia, Inc.	06/17	Veolia Energy Philadelphia, Inc.	Docket No. R-2017-2593142	Rate of Return
Emporium Water Company	07/14	Emporium Water Company	Docket No. R-2014-2402324	Rate of Return
Columbia Water Company	07/13	Columbia Water Company	Docket No. R-2013-2360798	Rate of Return
Penn Estates Utilities, Inc.	12/11	Penn Estates, Utilities, Inc.	Docket No. R-2011-2255159	Capital Structure / Long-Term Debt Cost Rate
South Carolina Public Service Commission				
Carolina Water Service, Inc.	06/15	Carolina Water Service, Inc.	Docket No. 2015-199-WS	Rate of Return
Carolina Water Service, Inc.	11/13	Carolina Water Service, Inc.	Docket No. 2013-275-WS	Rate of Return
United Utility Companies, Inc.	09/13	United Utility Companies, Inc.	Docket No. 2013-199-WS	Rate of Return
Utility Services of South Carolina, Inc.	09/13	Utility Services of South Carolina, Inc.	Docket No. 2013-201-WS	Rate of Return
Tega Cay Water Services, Inc.	11/12	Tega Cay Water Services, Inc.	Docket No. 2012-177-WS	Capital Structure
Virginia State Corporation Commission				
Aqua Virginia, Inc.	7/17	Aqua Virginia, Inc.	PUR-2017-00082	Rate of Return
Massanutten Public Service Corp.	08/14	Massanutten Public Service Corp.	PUE-2014-00035	Rate of Return / Rate Design

Carolina Water Service, Inc. of South Carolina
Table of Contents
to Exhibit No. __
of Dylan W. D'Ascendis, CRRA, CVA

Carolina Water Service, Inc. of South Carolina
Recommended Capital Structure and Cost Rates
for Ratemaking Purposes
Estimated at December 31, 2017

Type Of Capital	Ratios (1)	Cost Rate		Weighted Cost Rate
Long-Term Debt	48.11%	6.60%	(1)	3.18%
Common Equity	51.89%	10.45% - 10.95%	(2)	5.42% - 5.68%
Total	100.00%			8.60% 8.86%

Notes:

(1) Company-Provided.
(2) From page 2 of this Schedule.

Carolina Water Service, Inc. of South Carolina
Brief Summary of Common Equity Cost Rate

Line No.	Principal Methods	Proxy Group of Eight Water Companies
1.	Discounted Cash Flow Model (DCF) (1)	8.64%
2.	Risk Premium Model (RPM) (2)	10.69%
3.	Capital Asset Pricing Model (CAPM) (3)	10.51%
4.	Market Models Applied to Comparable Risk, Non-Price Regulated Companies (4)	12.06%
5.	Indicated Common Equity Cost Rate before Adjustment for Business Risks	10.45%
6.	Size Risk Adjustment (5)	0.50%
7.	Indicated Common Equity Cost Rate	10.95%
8.	Range of Common Equity Cost Rates	10.45% - 10.95%

Notes:
(1) From Schedule DWD-3.
(2) From page 1 of Schedule DWD-4.
(3) From page 1 of Schedule DWD-5.
(4) From page 1 of Schedule DWD-7.
(5) From Schedule DWD-8

Proxy Group of Eight Water Companies
CAPITALIZATION AND FINANCIAL STATISTICS (1)
2012 - 2016, Inclusive

	2016	2015	2014	2013	2012	
			(MILLIONS OF DOLLARS)			
CAPITALIZATION STATISTICS						
AMOUNT OF CAPITAL EMPLOYED						
TOTAL PERMANENT CAPITAL	$2,399.854	$2,269.476	$2,156.407	$2,058.747	$1,998.358	
SHORT-TERM DEBT	$137.724	$95.003	$72.459	$95.589	$60.594	
TOTAL CAPITAL EMPLOYED	$2,537.578	$2,364.479	$2,228.866	$2,154.336	$2,058.952	
INDICATED AVERAGE CAPITAL COST RATES (2)						
TOTAL DEBT	4.73 %	4.89 %	5.01 %	5.19 %	5.36 %	
PREFERRED STOCK	5.42 %	5.42 %	5.30 %	5.51 %	5.53 %	
CAPITAL STRUCTURE RATIOS						5 YEAR AVERAGE
BASED ON TOTAL PERMANENT CAPITAL:						
LONG-TERM DEBT	46.13 %	46.25 %	45.71 %	46.24 %	49.32 %	46.73 %
PREFERRED STOCK	0.12	0.12	0.13	0.16	0.18	0.14
COMMON EQUITY	53.75	53.63	54.16	53.60	50.50	53.13
TOTAL	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
BASED ON TOTAL CAPITAL:						
TOTAL DEBT, INCLUDING SHORT-TERM	48.59 %	47.63 %	47.00 %	47.77 %	50.87 %	48.37 %
PREFERRED STOCK	0.11	0.12	0.13	0.15	0.17	0.14
COMMON EQUITY	51.30	52.25	52.87	52.08	48.96	51.49
TOTAL	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
FINANCIAL STATISTICS						
FINANCIAL RATIOS - MARKET BASED						
EARNINGS / PRICE RATIO	4.01 %	4.72 %	5.44 %	4.84 %	5.47 %	4.90 %
MARKET / AVERAGE BOOK RATIO	274.64	224.46	212.84	206.33	187.65	221.18
DIVIDEND YIELD	2.17	2.66	2.76	2.88	3.17	2.73
DIVIDEND PAYOUT RATIO	55.72	56.71	52.46	58.35	60.42	56.73
RATE OF RETURN ON AVERAGE BOOK COMMON EQUITY	10.83 %	10.40 %	11.38 %	10.08 %	10.12 %	10.56 %
TOTAL DEBT / EBITDA (3)	3.63 X	3.64 X	3.40 X	3.65 X	3.83 X	3.63 X
FUNDS FROM OPERATIONS / TOTAL DEBT (4)	22.17 %	24.05 %	25.95 %	22.85 %	20.86 %	23.18 %
TOTAL DEBT / TOTAL CAPITAL	48.59 %	47.63 %	47.00 %	47.77 %	50.87 %	48.37 %

Notes:

(1) All capitalization and financial statistics for the group are the arithmetic average of the achieved results for each individual company in the group, and are based upon financial statements as originally reported in each year.

(2) Computed by relating actual total debt interest or preferred stock dividends booked to average of beginning and ending total debt or preferred stock reported to be outstanding.

(3) Total debt relative to EBITDA (Earnings before Interest, Income Taxes, Depreciation and Amortization).

(4) Funds from operations (sum of net income, depreciation, amortization, net deferred income tax and investment tax credits, less total AFUDC) plus interest charges as a percentage of total debt.

Source of Information: Company Annual Forms 10-K

Capital Structure Based upon Total Permanent Capital for the
Proxy Group of Eight Water Companies
2012 - 2016, Inclusive

	2016	2015	2014	2013	2012	5 YEAR AVERAGE
American States Water Co.						
Long-Term Debt	39.40 %	41.15 %	39.15 %	40.30 %	42.49 %	40.50 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	60.60	58.85	60.85	59.70	57.51	59.50
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
American Water Works Company Inc						
Long-Term Debt	54.74 %	53.89 %	52.70 %	52.42 %	54.30 %	53.61 %
Preferred Stock	0.09	0.11	0.15	0.17	0.21	0.15
Common Equity	45.17	46.00	47.15	47.41	45.49	46.24
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Aqua America Inc						
Long-Term Debt	50.81 %	50.76 %	49.45 %	50.32 %	53.41 %	50.95 %
Preferred Stock	0.00	0.00	0.00	0.01	0.01	0.00
Common Equity	49.19	49.24	50.55	49.67	46.58	49.05
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
California Water Service Group						
Long-Term Debt	45.83 %	44.69 %	40.46 %	42.03 %	50.39 %	44.68 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	54.17	55.31	59.54	57.97	49.61	55.32
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Connecticut Water Service Inc						
Long-Term Debt	46.02 %	44.54 %	45.91 %	47.34 %	49.03 %	46.57 %
Preferred Stock	0.18	0.19	0.20	0.20	0.21	0.20
Common Equity	53.80	55.27	53.89	52.46	50.76	53.23
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Middlesex Water Co.						
Long-Term Debt	38.91 %	40.44 %	41.55 %	41.36 %	43.53 %	41.16 %
Preferred Stock	0.67	0.69	0.71	0.88	1.02	0.79
Common Equity	60.42	58.87	57.74	57.76	55.45	58.05
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
SJW Corp						
Long-Term Debt	50.69 %	50.03 %	51.66 %	51.09 %	55.39 %	51.77 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	49.31	49.97	48.34	48.91	44.61	48.23
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
York Water Co.						
Long-Term Debt	42.60 %	44.46 %	44.81 %	45.07 %	45.98 %	44.58 %
Preferred Stock	0.00	0.00	0.00	0.00	0.00	0.00
Common Equity	57.40	55.54	55.19	54.93	54.02	55.42
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Proxy Group of Eight Water Companies						
Long-Term Debt	46.13 %	46.25 %	45.71 %	46.24 %	49.32 %	46.73 %
Preferred Stock	0.12	0.12	0.13	0.16	0.18	0.14
Common Equity	53.75	53.63	54.16	53.60	50.50	53.13
Total Capital	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %

Source of Information
Annual Forms 10-K

Carolina Water Service, Inc. of South Carolina
Indicated Common Equity Cost Rate Using the Discounted Cash Flow Model for
Proxy Group of Eight Water Companies

Proxy Group of Eight Water Companies	[1] Average Dividend Yield (1)	[2] Value Line Projected Five Year Growth in EPS (2)	[3] Reuters Mean Consensus Projected Five Year Growth Rate in EPS	[4] Zack's Five Year Projected Growth Rate in EPS	[5] Yahoo! Finance Projected Five Year Growth in EPS	[6] Average Projected Five Year Growth in EPS (3)	[7] Adjusted Dividend Yield (4)	[8] Indicated Common Equity Cost Rate (5)
American States Water Co.	2.03 %	6.50 %	4.90 %	5.00 %	4.90 %	5.33 %	2.08 %	7.41 %
American Water Works Company Inc	2.03	8.50	8.52	7.40	7.03	7.86	2.11	9.97
Aqua America Inc	2.43	7.00	6.87	6.30	5.60	6.44	2.51	8.95
California Water Service Group	1.88	9.00	9.80	5.50	9.80	8.53	1.96	10.49
Connecticut Water Service Inc	2.08	4.50	5.45	6.00	5.45	5.35	2.14	7.49
Middlesex Water Co.	2.16	8.50	NA	NA	2.70	5.60	2.22	7.82
SJW Corp	1.56	4.50	NA	NA	14.00	9.25	1.63	10.88
York Water Co.	1.88	7.00	NA	NA	4.90	5.95	1.94	7.89
							Average	8.86 %
							Median	8.42 %
							Average of Mean and Median	8.64 %

NA= Not Available

Notes:

(1) Indicated dividend at 10/13/2017 divided by the average closing price of the last 60 trading days ending 10/13/2017 for each company.

(2) From pages 2 through 9 of this Schedule.

(3) Average of columns 2 through 5 excluding negative growth rates.

(4) This reflects a growth rate component equal to one-half the conclusion of growth rate (from column 6) x column 1 to reflect the periodic payment of dividends (Gordon Model) as opposed to the continuous payment. Thus, for American States Water Co., 2.03% x (1+(1/2 x 5.33%)) = 2.08%.

(5) Column 6 + column 7.

Source of Information:

Value Line Investment Survey
www.reuters.com Downloaded on 10/13/201
www.zacks.com Downloaded on 10/13/2017
www.yahoo.com Downloaded on 10/13/2017

Exhibit No. __
Schedule DWD-3
Page 1 of 9

AMER. STATES WATER NYSE-AWR

RECENT PRICE 51.11 | P/E RATIO 26.9 (Trailing: 27.6 Median: 20.0) | RELATIVE P/E RATIO 1.35 | DIV'D YLD 2.0% | VALUE LINE

TIMELINESS 3 Lowered 8/11/17
SAFETY 2 Raised 7/20/12
TECHNICAL 2 Raised 9/29/17
BETA .80 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	55	(+10%)	4%
Low	40	(-20%)	-3%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	0	0	0	0	0	0	0	0	0
Options	2	3	11	11	0	8	2	0	3
to Sell	1	3	2	3	1	4	3	2	4

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	102	87	96
to Sell	87	89	84
Hld's(000)	24607	29082	28355

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
High:	21.9	23.1	21.0	19.4	19.8	18.2	24.1	33.1	38.7	44.1	47.2	51.8								
Low:	15.1	16.8	13.5	14.9	15.6	15.3	17.0	24.0	27.0	35.8	37.3	41.1								
	6.53	6.89	6.99	6.81	7.03	7.88	8.75	9.21	9.74	10.71	11.12	12.12	12.19	12.17	12.56	11.92	12.40	12.65	Revenues per sh	15.95
	1.26	1.27	1.04	1.11	1.32	1.45	1.65	1.69	1.70	2.11	2.13	2.48	2.65	2.67	2.81	2.70	2.85	3.05	"Cash Flow" per sh	3.85
	.67	.67	.39	.53	.66	.67	.81	.78	.81	1.11	1.12	1.41	1.61	1.57	1.60	1.62	1.85	1.85	Earnings per sh A	2.35
	.43	.44	.44	.44	.45	.46	.48	.50	.51	.52	.55	.64	.76	.83	.87	.91	.98	1.05	Div'd Decl'd per sh B■	1.35
	1.59	1.34	1.88	2.51	2.12	1.95	1.45	2.23	2.09	2.12	2.13	1.77	2.52	1.89	2.39	3.55	3.15	3.15	Cap'l Spending per sh	3.60
	6.61	7.02	6.98	7.51	7.86	8.32	8.77	8.97	9.70	10.13	10.84	11.80	12.72	13.24	12.77	13.52	14.20	14.85	Book Value per sh	16.80
	30.24	30.36	30.42	33.50	33.60	34.10	34.46	34.60	37.06	37.26	37.70	38.53	38.72	38.29	36.50	36.57	36.70	36.80	Common Shs Outst'g C	37.00
	16.7	18.3	31.9	23.2	21.9	27.7	24.0	22.6	21.2	15.7	15.4	14.3	17.2	20.1	24.6	25.6	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	21.0
	.86	1.00	1.82	1.23	1.17	1.50	1.27	1.36	1.41	1.00	.97	.91	.97	1.06	1.24	1.35			Relative P/E Ratio	1.30
	3.9%	3.6%	3.5%	3.6%	3.1%	2.5%	2.5%	2.9%	2.9%	3.0%	3.2%	3.1%	2.7%	2.6%	2.2%	2.2%			Avg Ann'l Div'd Yield	2.8%
							301.4	318.7	361.0	398.9	419.3	466.9	472.1	465.8	458.8	436.1	465	470	Revenues ($mill)	590
							28.0	26.8	29.5	41.4	42.0	54.1	62.7	61.1	60.5	59.7	62.0	66.0	Net Profit ($mill)	87.0
							42.6%	37.8%	38.9%	43.2%	41.7%	39.9%	36.3%	38.4%	38.4%	36.8%	36.5%	35.0%	Income Tax Rate	35.0%
							8.5%	6.9%	3.2%	5.8%	2.0%	2.5%	--	--	2.5%	.5%	1.5%	2.0%	AFUDC % to Net Profit	2.5%
							46.9%	46.2%	45.9%	44.3%	45.4%	42.2%	39.8%	39.1%	41.1%	39.4%	40.0%	42.0%	Long-Term Debt Ratio	43.5%
							53.1%	53.8%	54.1%	55.7%	54.6%	57.8%	60.2%	60.9%	58.9%	60.6%	60.0%	58.0%	Common Equity Ratio	56.5%
							569.4	577.0	665.0	677.4	749.1	787.0	818.4	832.6	791.5	815.3	870	935	Total Capital ($mill)	1100
							776.4	825.3	866.4	855.0	896.5	917.8	981.5	1003.5	1060.8	1150.9	1200	1250	Net Plant ($mill)	1400
							6.7%	6.4%	5.9%	7.6%	7.1%	8.3%	8.9%	8.6%	9.0%	8.6%	8.5%	8.5%	Return on Total Cap'l	9.0%
							9.3%	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	12.0%	12.0%	Return on Shr. Equity	14.0%
							9.3%	8.6%	8.2%	11.0%	10.3%	11.9%	12.7%	12.0%	13.0%	12.1%	12.0%	12.0%	Return on Com Equity	14.0%
							3.9%	3.1%	3.2%	5.8%	5.3%	6.6%	6.8%	5.7%	6.0%	5.3%	5.0%	5.5%	Retained to Com Eq	6.0%
							58%	64%	61%	47%	49%	45%	47%	53%	54%	56%	58%	58%	All Div'ds to Net Prof	57%

LEGENDS
1.25 x Dividends p sh divided by Interest Rate
Relative Price Strength
2-for-1 split 9/13
Options: Yes
Shaded area indicates recession

Target Price Range 2020 | 2021 | 2022

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	25.7	16.4
3 yr.	73.0	31.5
5 yr.	150.6	88.9

CAPITAL STRUCTURE as of 6/30/17
Total Debt $365.3 mill. Due in 5 Yrs $41.7 mill.
LT Debt $321.0 mill. LT Interest $20.0 mill. (38% of Cap'l)

Leases, Uncapitalized: Annual rentals $2.5 mill.
Pension Assets-12/16 $150.9 mill.
Oblig. $180.4 mill.
Pfd Stock None.

Common Stock 36,644,758 shs. as of 7/31/17

MARKET CAP: $1.9 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	4.4	.4	2.1
Accts Receivable	18.9	20.0	25.3
Other	109.4	146.5	122.1
Current Assets	132.7	166.9	149.5
Accts Payable	50.6	43.7	45.2
Debt Due	28.3	90.3	44.3
Other	44.6	43.9	51.0
Current Liab.	123.5	177.9	140.5

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	5.5%	3.0%	4.5%
"Cash Flow"	7.5%	6.5%	6.0%
Earnings	10.0%	9.5%	6.5%
Dividends	7.0%	10.5%	7.5%
Book Value	5.5%	5.0%	4.0%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	102.0	115.6	138.3	109.9	465.8
2015	100.9	114.6	133.0	110.1	458.6
2016	93.5	112.0	123.8	106.8	436.1
2017	98.8	113.2	140	113	465
2018	102	118	135	115	470

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.28	.39	.54	.36	1.57
2015	.32	.41	.56	.31	1.60
2016	.28	.45	.59	.30	1.62
2017	.34	.62	.59	.30	1.85
2018	.39	.48	.60	.38	1.85

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.1775	.1775	.2025	.2025	.76
2014	.2025	.2025	.213	.213	.83
2015	.213	.213	.224	.224	.87
2016	.224	.224	.224	.242	.91
2017	.242	.242	.255		

BUSINESS: American States Water Co. operates as a holding company. Through its principal subsidiary, Golden State Water Company, it supplies water to 261,002 customers in 75 cities and 10 counties. Service areas include the greater metropolitan areas of Los Angeles and Orange Counties. The company also provides electric utility services to 23,940 customers in the city of Big Bear Lake and in areas of San Bernardino County. Sold Chaparral City Water of Arizona (6/11). Has 736 employees. BlackRock, Inc. owns 11.7% of out. shares; Vanguard, 9.5%;; off. & dir. 1.5%. (4/17 Proxy). Chairman: Lloyd Ross. President & Chief Executive Officer: Robert J. Sprowls. Inc: CA. Address: 630 East Foothill Blvd., San Dimas, CA 91773. Tel: 909-394-3600. Internet: www.aswater.com.

American States Water was forced to divest an operation for a profit. The water utility's California-based Golden States Water subsidiary sold its Ojai Water System this summer to the municipal district of Casitas for $34.3 million. Ultimately, the company didn't have a choice, as Casitas was using eminent domain to acquire the assets. In any case, the sale resulted in a second-quarter pretax gain of $8.3 million, or about $0.13 a share.

The nonutility sector is performing well. Responsible for about 20% of the company's normalized profits, the ASUS subsidiary provides water services to U.S. military installations. The government is in the midst of privatizing the water systems on many domestic bases. Earlier this year, ASUS snagged a 50-year contract with the Elgin Air Force Base that is expected to generate $510 million in revenues. On October 2nd, the company announced that it was awarded another 50-year contract worth $601 million to service Ft. Riley in Kansas. We expect the company to continue to win a fair share of this business. Since these operations are unregulated, ASUS's return on equity is not limited, however, the business also carries more risk.

Overall, earnings and dividend growth prospects are good. Due mostly to the aforementioned sale of assets, we have raised our 2017 share-earning's estimate for the company $0.15, to $1.85. This represents a hefty 14% year-over-year gain. In 2018, we think that the company will manage to post the same strong share earnings as the nonregulated sector contribution to the bottom line rises.

We think both short- and long-term investors can find better alternatives elsewhere. Shares of AWR have been on a nice run of late. Historically, water utility stocks have been defensive income plays because of their low volatility, high dividend yields, and good dividend growth prospects. At its recent price, AWR's 2.0% yield is only on par with the *Value Line* median. In our opinion, most of the good news associated with the stock appears to be reflected in the recent price. Hence, this neutrally ranked equity has subpar total return prospects through 2020-2022.

James A. Flood *October 13, 2017*

(A) Primary earnings. Excludes nonrecurring gains/(losses): '04, 7¢; '05, 13¢; '06, 3¢; '08, (14¢); '10, (23¢); '11, 10¢. Next earnings report due mid-November.
(B) Dividends historically paid in early March, June, September, and December. ■ Div'd reinvestment plan available.
(C) In millions, adjusted for split.

Company's Financial Strength	A
Stock's Price Stability	75
Price Growth Persistence	70
Earnings Predictability	85

AMERICAN WATER NYSE-AWK

RECENT PRICE 81.75 | P/E RATIO 27.7 (Trailing: 30.8 Median: NMF) | RELATIVE P/E RATIO 1.39 | DIV'D YLD 2.1% | VALUE LINE

TIMELINESS 3 Lowered 8/18/17
SAFETY 3 New 7/25/08
TECHNICAL 2 Raised 10/13/17
BETA .65 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	90	(+10%)	5%
Low	60	(-25%)	-4%

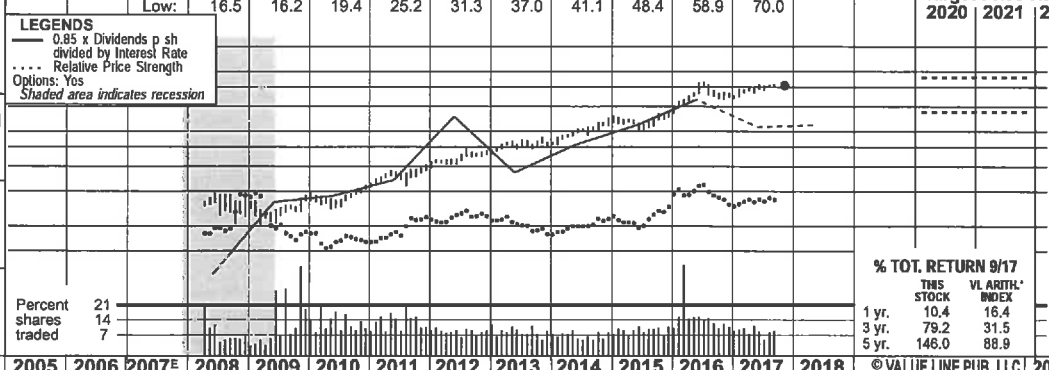
Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	9	3	0	7	0	0	1
to Sell	0	0	1	2	0	2	0	0	1

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	316	269	281
to Sell	278	302	291
Hld's(000)	145668	160388	158865

LEGENDS
0.85 x Dividends p sh divided by Interest Rate
Relative Price Strength
Options: Yes
Shaded area indicates recession



% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	10.4	16.4
3 yr.	79.2	31.5
5 yr.	146.0	88.9

2001	2002	2003	2004	2005	2006	2007E	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
--	--	--	--	--	13.08	13.84	14.61	13.98	15.49	15.18	16.25	16.28	16.78	17.72	18.54	*19.25*	*20.10*	Revenues per sh	*23.05*
--	--	--	--	--	.65	d.47	2.87	2.89	3.56	3.73	4.27	4.36	4.75	5.13	5.26	*5.60*	*6.15*	"Cash Flow" per sh	*7.45*
--	--	--	--	--	d.97	d2.14	1.10	1.25	1.53	1.72	2.11	2.06	2.39	2.64	2.62	*2.85*	*3.25*	Earnings per sh A	*4.15*
--	--	--	--	--	--	--	.40	.82	.86	.90	1.21	.84	1.21	1.33	1.47	*1.62*	*1.76*	Div'd Decl'd per sh B■	*2.35*
--	--	--	--	--	4.31	4.74	6.31	4.50	4.38	5.27	5.25	5.50	5.33	6.51	7.36	*6.75*	*6.70*	Cap'l Spending per sh	*6.40*
--	--	--	--	--	23.86	28.39	25.64	22.91	23.59	24.11	25.11	26.52	27.39	28.25	29.24	*30.90*	*32.40*	Book Value per sh D	*39.45*
--	--	--	--	--	160.00	160.00	160.00	174.63	175.00	175.66	176.99	178.25	179.46	178.28	178.10	*178.50*	*179.00*	Common Shs Outst'g C	*187.50*
--	--	--	--	--	--	--	18.9	15.6	14.6	16.8	16.7	19.9	20.0	20.5	27.7	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*18.0*
--	--	--	--	--	--	--	1.14	1.04	.93	1.05	1.06	1.12	1.05	1.03	1.48			Relative P/E Ratio	*1.15*
--	--	--	--	--	--	--	1.9%	4.2%	3.8%	3.1%	3.4%	2.0%	2.5%	2.5%	2.0%			Avg Ann'l Div'd Yield	*3.1%*
2214.2	2336.9	2440.7	2710.7	2666.2	2876.9	2901.9	3011.3	3159.0	3302.0	*3440*	*3600*	Revenues ($mill)	*4325*
d342.3	187.2	209.9	267.8	304.9	374.3	369.3	429.8	476.0	468.0	*510*	*580*	Net Profit ($mill)	*780*
--	37.4%	37.9%	40.4%	39.5%	40.7%	39.1%	39.4%	39.1%	39.2%	*41.0%*	*38.0%*	Income Tax Rate	*36.5%*
--	--	--	--	--	6.2%	5.1%	--	5.1%	1.4%	*2.0%*	*2.5%*	AFUDC % to Net Profit	*3.5%*
50.9%	53.1%	56.9%	56.8%	55.7%	53.9%	52.4%	52.4%	53.7%	52.4%	*53.5%*	*55.0%*	Long-Term Debt Ratio	*54.0%*
49.1%	46.9%	43.1%	43.2%	44.2%	46.1%	47.6%	47.4%	46.2%	47.5%	*46.5%*	*45.0%*	Common Equity Ratio	*46.0%*
9245.7	8750.2	9289.0	9561.3	9580.3	9635.5	9940.7	10364	10911	10967	*11600*	*12850*	Total Capital ($mill)	*16000*
9318.0	9991.8	10524	11059	11021	11739	12391	12900	13933	14992	*15675*	*16400*	Net Plant ($mill)	*18000*
NMF	3.7%	3.8%	4.4%	4.8%	5.4%	5.1%	5.5%	5.7%	5.6%	*6.0%*	*6.0%*	Return on Total Cap'l	*6.5%*
NMF	4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	*9.5%*	*10.0%*	Return on Shr. Equity	*10.5%*
NMF	4.6%	5.2%	6.5%	7.2%	8.4%	7.8%	8.7%	9.4%	9.0%	*9.5%*	*10.0%*	Return on Com Equity	*10.5%*
NMF	3.0%	1.8%	2.8%	3.5%	3.6%	4.7%	4.3%	4.7%	4.0%	*4.5%*	*4.5%*	Retained to Com Eq	*4.5%*
--	34%	65%	58%	52%	57%	40%	50%	50%	58%	*57%*	*55%*	All Div'ds to Net Prof	*57%*

CAPITAL STRUCTURE as of 6/30/17
Total Debt $7453.0 mil. **Due in 5 Yrs** $1698.0 mil.
LT Debt $5650.0 mil. **LT Interest** $300.0 mil. (51% of Cap'l)

Leases, Uncapitalized: Annual rentals $14.0 mill.
Pension Assets 12/16 $1443.0 mill
Oblig. $1864.0 mill.
Pfd Stock $9.0 mill. **Pfd Div'd** $.5 mill

Common Stock 178,282,329 shs.
as of 7/27/17

MARKET CAP: $14.6 billion (Large Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	45.0	75.0	64.0
Accts Receivable	255.0	269.0	288.0
Other	357.0	440.0	456.0
Current Assets	657.0	784.0	808.0
Accts Payable	126.0	154.0	134.0
Debt Due	682.0	1423.0	1803.0
Other	725.0	815.0	724.0
Current Liab.	1533.0	2392.0	2661.0

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	3.0%	3.5%	*4.5%*
"Cash Flow"	23.0%	8.5%	*6.5%*
Earnings	--	11.0%	*8.5%*
Dividends	--	9.0%	*10.0%*
Book Value	1.5%	4.0%	*5.5%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	679.0	754.8	846.1	731.4	3011.3
2015	698.0	782.0	896.0	783.0	3159.0
2016	743.0	827.0	930.0	802.0	3302.0
2017	756.0	844.0	*985*	*855*	*3440*
2018	*770*	*895*	*1040*	*895*	*3600*

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.39	.62	.86	.52	2.39
2015	.44	.68	.96	.56	2.64
2016	.46	.77	.83	.57	2.62
2017	.52	.73	*1.02*	*.58*	*2.85*
2018	*.62*	*.83*	*1.09*	*.71*	*3.25*

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.28	.31	.31	.31	1.21
2015	.31	.34	.34	.34	1.33
2016	.34	.375	.375	.375	1.47
2017	.375	.415	.415		

BUSINESS: American Water Works Company, Inc. is the largest investor-owned water and wastewater utility in the U.S., providing services to over 15 million people in over 47 states and Canada. (Regulated presence in 16 states.) Nonregulated business assists municipalities and military bases with the maintenance and upkeep as well. Regulated operations made up 86.5% of 2016 revenues. New Jersey is its largest market accounting for 25.4% of regulated revenues. Has 6,800 employees. The Vanguard Group, owns 9.6% of outstanding shares; BlackRock, Inc., 8.2%; officers & directors, less than 1.0%. (3/17 Proxy). President & CEO: Susan N. Story. Chair.: George MacKenzie. Address: 1025 Laurel Oak Road, Voorhees, NJ 08043. Tel.: 856-346-8200. Internet: www.amwater.com.

A court has granted preliminary approval to a settlement in a legal suit against American Water Works. In January of 2014, the wholly owned West Virginia-based subsidiary of the water utility was sued over the Freedom Industries chemical spill into the Elk River. According to the proposed deal, American Water would have to pay approximately $126 million to resolve all claims against it. Net of insurance proceeds, management believes that the final aftertax hit to earnings will be about $26 million, or $0.14 a share.

The bottom line has also been hurt by a couple of other factors. A recent ruling in the state of New York, which indicated that water utilities do not qualify for the manufacturer tax break, resulted in a one-time noncash charge of around $7 million in the second quarter. Also, during the same period, operating income from the company's nonutility business declined 30% due largely to reduced capital spending at U.S. military bases.

Still, on the whole, the utility's earning prospects are relatively bright. Even with the penalty from the West Virginia settlement (we have taken it out of this year's fourth quarter), we estimate that American Water's share earnings will rise 9% over 2016's mediocre figure. What's more, with the company earning a return on more assets and demand for the military expected to pick up (there are several military bases seeking bids to privatize their water systems), share earnings can probably climb a hefty 14% in 2018. The company's continued strategy of making many small acquisitions and using economies of scale to make the operations more efficient will also play a major part.

The long-term outlook for dividend growth is excellent. We think that the annual payout can rise 10% over the next 3- to 5-year period. This is the highest of any member of this group.

These shares do not hold any great appeal at this time, however. Despite being the largest and possibly best-run publicly owned water utility in the country, the premium demanded by the market for this group of stocks seems excessive, in our opinion. Hence, investors can probably do better elsewhere.

James A. Flood *October 13, 2017*

(A) Diluted earnings. Excludes nonrecurring losses: '08, $4.62; '09, $2.63; '11, $0.07. Discontinued operations: '06, ($0.04); '11, $0.03; '12, ($0.10); '13,($0.01). GAAP used as of 2014. Next earnings report due mid-November. Quarterly earnings do not sum in '16 due to rounding. (B) Dividends paid in March, June, September, and December. ■ Div. reinvestment available. (C) In millions. (D) Includes intangibles. On 6/30/17: $1.373 billion, $7.70/share. (E) Pro forma numbers for '06 & '07.

Company's Financial Strength	B+
Stock's Price Stability	100
Price Growth Persistence	85
Earnings Predictability	90

AQUA AMERICA NYSE-WTR

RECENT PRICE 33.77 | P/E RATIO 24.3 (Trailing: 25.8 Median: 22.0) | RELATIVE P/E RATIO 1.21 | DIV'D YLD 2.5% | VALUE LINE

TIMELINESS 3 Lowered 8/26/16
SAFETY 2 Raised 4/20/12
TECHNICAL 1 Raised 10/13/17
BETA .70 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	45	(+35%)	10%
Low	35	(+5%)	4%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	0	0	0	0	0	0	0	0	0
Options	0	7	6	7	7	0	1	7	0
to Sell	0	0	0	0	0	0	2	0	0

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	182	179	172
to Sell	171	180	155
Hld's(000)	88568	103594	104564

	2020	2021	2022
Target Price Range			

LEGENDS
— 1.60 x Dividends p sh divided by Interest Rate
.... Relative Price Strength
4-for-3 split 12/05
5-for-4 split 9/13
Options: Yes
Shaded area indicates recession

5-for-4

% TOT. RETURN 9/17	THIS STOCK	VL ARITH.* INDEX
1 yr.	11.6	16.4
3 yr.	51.9	31.5
5 yr.	89.6	88.9

	High:	23.8	21.3	17.6	17.2	18.4	19.0	21.5	28.1	28.2	31.1	35.8	34.7			
	Low:	16.1	15.1	9.8	12.3	13.2	15.4	16.8	20.6	22.4	24.4	28.0	29.4			
Percent shares traded	15															
	10															
	5															

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
2.16	2.28	2.38	2.78	3.08	3.23	3.61	3.71	3.93	4.21	4.10	4.32	4.32	4.37	4.61	4.62	*4.65*	*4.95*	Revenues per sh	*6.05*
.69	.76	.77	.87	.97	1.01	1.10	1.14	1.29	1.42	1.45	1.51	1.82	1.89	1.87	2.07	*2.15*	*2.25*	"Cash Flow" per sh	*2.75*
.41	.43	.46	.51	.57	.56	.57	.58	.62	.72	.83	.87	1.16	1.20	1.14	1.32	*1.36*	*1.45*	Earnings per sh [A]	*1.85*
.24	.26	.28	.29	.32	.35	.38	.41	.44	.47	.50	.54	.58	.63	.69	.74	*.80*	*.85*	Div'd Decl'd per sh [B]■	*1.15*
.87	.96	1.06	1.23	1.47	1.64	1.43	1.58	1.66	1.89	1.90	1.98	1.73	1.84	2.07	2.16	*2.55*	*2.45*	Cap'l Spending per sh	*2.25*
3.32	3.49	4.27	4.71	5.04	5.57	5.85	6.26	6.50	6.81	7.21	7.90	8.63	9.27	9.78	10.43	*11.10*	*11.75*	Book Value per sh	*14.85*
142.47	141.49	154.31	158.97	161.21	165.41	166.75	169.21	170.61	172.46	173.60	175.43	177.93	178.59	176.54	177.39	*178.00*	*178.50*	Common Shs Outst'g [C]	*180.00*
23.6	23.6	24.5	25.1	31.8	34.7	32.0	24.9	23.1	21.1	21.3	21.9	21.2	20.8	23.5	23.9	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*21.0*
1.21	1.29	1.40	1.33	1.69	1.87	1.70	1.50	1.54	1.34	1.34	1.39	1.19	1.09	1.18	1.26			Relative P/E Ratio	*1.30*
2.5%	2.5%	2.5%	2.3%	1.8%	1.8%	2.1%	2.8%	3.1%	3.1%	2.8%	2.8%	2.4%	2.5%	2.6%	2.3%			Avg Ann'l Div'd Yield	*2.9%*
						602.5	627.0	670.5	726.1	712.0	757.8	768.6	779.9	814.2	819.9	*830*	*880*	Revenues ($mill)	*1085*
						95.0	97.9	104.4	124.0	144.8	153.1	205.0	213.9	201.8	234.2	*245*	*260*	Net Profit ($mill)	*335*
						38.9%	39.7%	39.4%	39.2%	32.9%	39.0%	10.0%	10.5%	6.9%	8.2%	*9.0%*	*9.0%*	Income Tax Rate	*10.0%*
						--	--	--	--	--	--	1.1%	2.4%	3.1%	3.8%	*3.5%*	*3.0%*	AFUDC % to Net Profit	*3.5%*
						55.4%	54.1%	55.6%	56.6%	52.7%	52.7%	48.9%	48.5%	50.3%	48.4%	*47.0%*	*49.0%*	Long-Term Debt Ratio	*51.0%*
						44.6%	45.9%	44.4%	43.4%	47.3%	47.3%	51.1%	51.5%	49.7%	51.6%	*53.0%*	*51.0%*	Common Equity Ratio	*49.0%*
						2191.4	2306.6	2495.5	2706.2	2646.8	2929.7	3003.6	3216.0	3469.5	3587.7	*3735*	*4100*	Total Capital ($mill)	*5500*
						2792.8	2997.4	3227.3	3469.3	3612.9	3936.2	4167.3	4402.0	4688.9	5001.6	*5080*	*5275*	Net Plant ($mill)	*5800*
						5.9%	5.7%	5.6%	5.9%	6.9%	6.6%	8.0%	7.8%	6.9%	7.6%	*7.5%*	*7.5%*	Return on Total Cap'l	*7.5%*
						9.7%	9.3%	9.4%	10.6%	11.6%	11.0%	13.4%	12.9%	11.7%	12.7%	*12.5%*	*12.5%*	Return on Shr. Equity	*12.5%*
						9.7%	9.3%	9.4%	10.6%	11.6%	11.0%	13.4%	12.9%	11.7%	12.7%	*12.5%*	*12.5%*	Return on Com Equity	*12.5%*
						3.2%	2.8%	2.7%	3.7%	4.6%	4.3%	6.7%	6.1%	4.7%	5.6%	*5.5%*	*5.0%*	Retained to Com Eq	*4.5%*
						67%	70%	72%	65%	60%	61%	50%	52%	60%	56%	*58%*	*59%*	All Div'ds to Net Prof	*62%*

CAPITAL STRUCTURE as of 6/30/17
Total Debt $2093.6 mill. **Due in 5 Yrs** $430.5 mill.
LT Debt $1882.6 mill. **LT Interest** $76.3 mill. (51% of Cap'l)

Pension Assets-12/16 $242.4 mill. **Oblig.** $308.2 mill.

Pfd Stock None
Common Stock 177,651,543 shares as of 7/24/17

MARKET CAP: $6.0 billion (Large Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	3.2	3.7	7.8
Receivables	99.1	97.4	98.9
Inventory (AvgCst)	12.4	13.0	16.8
Other	13.7	14.6	14.6
Current Assets	128.4	128.7	138.1
Accts Payable	56.5	59.9	46.4
Debt Due	52.3	157.2	221.0
Other	84.4	84.4	65.1
Current Liab.	193.2	301.5	332.5

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	2.0%	*5.0%*
"Cash Flow"	7.5%	7.0%	*6.0%*
Earnings	8.5%	11.0%	*7.0%*
Dividends	8.0%	8.0%	*9.0%*
Book Value	7.0%	7.5%	*6.5%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	182.7	195.3	210.5	191.4	779.9
2015	190.3	205.8	221.0	197.1	814.2
2016	192.6	203.9	226.6	196.8	819.9
2017	187.8	203.4	*233.8*	*205*	*830*
2018	*200*	*220*	*245*	*215*	*880*

Calendar	EARNINGS PER SHARE [A] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	.24	.31	.38	.27	1.20
2015	.27	.32	.38	.17	1.14
2016	.29	.34	.41	.28	1.32
2017	.28	.34	*.43*	*.31*	*1.36*
2018	*.31*	*.36*	*.47*	*.31*	*1.45*

Calendar	QUARTERLY DIVIDENDS PAID [B] ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.14	.14	.152	.152	.58
2014	.152	.152	.165	.165	.63
2015	.165	.165	.178	.178	.69
2016	.178	.178	.1913	.1913	.74
2017	.1913	.1913	.205		

BUSINESS: Aqua America, Inc. is the holding company for water and wastewater utilities that serve approximately three million residents in Pennsylvania, Ohio, North Carolina, Illinois, Texas, New Jersey, Florida, Indiana, and five other states. Has 1,551 employees. Acquired AquaSource, 7/13; North Maine Utilities, 7/15; and others. Water supply revenues '2016: residential, 59%; commercial, 16%; industrial, wastewater & other, 25%. Off. & dir. own less than 1% of the common stock; Vangurad Group, 8.9%; Blackrock, Inc, 8.1%; State Street Capital, 6.0% (3/17 Proxy). President & Chief Executive Officer: Christopher Franklin. Incorporated: Pennsylvania. Address: 762 West Lancaster Avenue, Bryn Mawr, Pennsylvania 19010. Tel.: 610-525-1400. Internet: www.aquaamerica.com.

A large percentage of Aqua America's future growth will likely come via acquisitions. Similar to other large publicly traded water utilities, Aqua has been a continual buyer of small local water districts. Indeed, most of the 100,000-plus water systems in the U.S. do not have the financial wherewithal to replace their aging infrastructures. By constantly purchasing these types of entities, Aqua can gradually increase its customer base. Moreover, since actual synergies do result from mergers in this industry, the new assets can be operated more efficiently.

There's always something happening on the regulatory front. The company has received rate relief in Indiana, New Jersey, North Carolina, Ohio and Pennsylvania. Other rate cases are pending in Virginia and Illinois. Aqua has good relationships with its regulators, so we are not expecting any major negative surprises.

Dividends should increase at a healthy rate for the foreseeable future. Last quarter, the payout was hiked by 7%. This is less than the company's five- and 10-year historical average of 8%. Nevertheless, we think Aqua's strong cash generation should enable its payouts to rise 8%-10% annually through 2020-2022.

Capital outlays are large but manageable. Aqua increased this year's capital expenditure budget to approximately $450 million. The majority of funds will be allocated to repair, maintain, and replace aged pipelines and equipment. We don't expect this figure to change much in 2018. In 2019, though, we think outlays should decline to the $300 million-$325 million range. Of the nine members included in the water group, Aqua is only one of two that rates a Financial Strength rating of at least an A. While the balance sheet may be more leveraged over the next couple of years, it should remain relatively healthy.

The stock has a high yield for a water utility. WTR is yielding 2.5%, or about 50 basis points more than its peers. This is unusual considering the equity's strong projected dividend growth. As a result, even though we still think shares of water utilities are currently trading at too high a premium, WTR is probably the best selection for those investors who must own a stock in this industry.

James A. Flood *October 13, 2017*

(A) Diluted egs. Excl. nonrec. gains: '01, 2¢; '02, 4¢; '03, 3¢; '12, 18¢. Excl. gain from disc. operations: '12, 7¢; '13, 9¢; '14, 11¢. May not sum due to rounding. Next earnings report due mid-November.
(B) Dividends historically paid in early March, June, Sept. & Dec. ■ Div'd. reinvestment plan available (5% discount).
(C) In millions, adjusted for stock splits.

Company's Financial Strength	A
Stock's Price Stability	95
Price Growth Persistence	65
Earnings Predictability	90

CALIFORNIA WATER NYSE-CWT

RECENT PRICE 39.65 | P/E RATIO 28.3 (Trailing: 33.0 Median: 20.0) | RELATIVE P/E RATIO 1.41 | DIV'D YLD 1.8% | VALUE LINE

TIMELINESS 2 Raised 9/1/17
SAFETY 3 Lowered 7/27/07
TECHNICAL 2 Lowered 10/13/17
BETA .80 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	50	(+25%)	8%
Low	30	(-25%)	-4%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	1	1	1	1	1	1	1	1	1
Options	0	0	0	22	0	0	0	0	0
to Sell	0	0	0	1	0	1	1	0	0

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	93	97	88
to Sell	82	83	77
Hld's(000)	34200	38886	38422

	High:	22.9	22.7	23.3	24.1	19.8	19.4	19.3	23.4	26.4	26.0	36.8	39.8
	Low:	16.4	17.1	13.8	16.7	16.9	16.7	16.8	18.4	20.3	19.5	22.5	32.4

LEGENDS
1.33 x Dividends p sh divided by Interest Rate
Relative Price Strength
2-for-1 split 6/11
Options: Yes
Shaded area indicates recession

Target Price Range 2020 | 2021 | 2022

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	21.4	16.4
3 yr.	83.2	31.5
5 yr.	134.5	88.9

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
8.13	8.67	8.18	8.59	8.72	8.10	8.88	9.90	10.82	11.05	12.00	13.34	12.23	12.50	12.29	12.70	*13.45*	*13.90*	Revenues per sh	*14.70*
1.10	1.32	1.26	1.42	1.52	1.36	1.56	1.86	1.93	1.93	2.07	2.32	2.21	2.47	2.22	2.34	*2.65*	*2.80*	"Cash Flow" per sh	*3.15*
.47	.63	.61	.73	.74	.67	.75	.95	.98	.91	.86	1.02	1.02	1.19	.94	1.01	*1.35*	*1.45*	Earnings per sh [A]	*1.75*
.56	.56	.56	.57	.57	.58	.58	.59	.59	.60	.62	.63	.64	.65	.67	.69	*.72*	*.75*	Div'd Decl'd per sh [B] ■	*.99*
2.04	2.91	2.19	1.87	2.01	2.14	1.84	2.41	2.66	2.97	2.83	3.04	2.58	2.76	3.69	4.77	*3.85*	*3.65*	Cap'l Spending per sh	*3.65*
6.48	6.56	7.22	7.83	7.90	9.07	9.25	9.72	10.13	10.45	10.76	11.28	12.54	13.11	13.41	13.75	*14.20*	*14.45*	Book Value per sh [C]	*16.00*
30.36	30.36	33.86	36.73	36.78	41.31	41.33	41.45	41.53	41.67	41.82	41.98	47.74	47.81	47.88	47.97	*48.25*	*48.50*	Common Shs Outst'g [D]	*50.00*
27.1	19.8	22.1	20.1	24.9	29.2	26.1	19.8	19.7	20.3	21.3	17.9	20.1	19.7	24.8	29.6	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*23.0*
1.39	1.08	1.26	1.06	1.33	1.58	1.39	1.19	1.31	1.29	1.34	1.14	1.13	1.04	1.25	1.56			Relative P/E Ratio	*1.45*
4.4%	4.5%	4.2%	3.9%	3.1%	2.9%	3.0%	3.1%	3.1%	3.2%	3.4%	3.5%	3.1%	2.8%	2.9%	2.3%			Avg Ann'l Div'd Yield	*2.5%*
367.1	410.3	449.4	460.4	501.8	560.0	584.1	597.5	588.3	609.4	*650*	*675*	Revenues ($mill) [E]	*735*
31.2	39.8	40.6	37.7	36.1	42.6	47.3	56.7	45.0	48.7	*65.0*	*70.0*	Net Profit ($mill)	*88.0*
39.9%	37.7%	40.3%	39.5%	40.5%	37.5%	30.3%	33.0%	36.0%	35.5%	*35.0%*	*35.0%*	Income Tax Rate	*35.0%*
8.3%	8.6%	7.6%	4.2%	7.6%	8.0%	4.3%	2.7%	4.3%	6.1%	*5.0%*	*5.0%*	AFUDC % to Net Profit	*5.0%*
42.9%	41.6%	47.1%	52.4%	51.7%	47.8%	41.6%	40.1%	44.4%	44.6%	*45.0%*	*45.0%*	Long-Term Debt Ratio	*43.0%*
56.6%	58.4%	52.9%	47.6%	48.3%	52.2%	58.4%	59.9%	55.6%	55.4%	*55.0%*	*55.0%*	Common Equity Ratio	*57.0%*
674.9	690.4	794.9	914.7	931.5	908.2	1024.9	1045.9	1154.4	1191.2	*1250*	*1275*	Total Capital ($mill)	*1400*
1010.2	1112.4	1198.1	1294.3	1381.1	1457.1	1515.8	1590.4	1701.8	1859.3	*1900*	*1930*	Net Plant ($mill)	*2000*
5.9%	7.1%	6.5%	5.5%	5.5%	6.3%	6.0%	6.3%	5.2%	5.5%	*6.5%*	*6.5%*	Return on Total Cap'l	*7.0%*
8.1%	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	*9.5%*	*10.0%*	Return on Shr. Equity	*11.0%*
8.1%	9.9%	9.6%	8.6%	8.0%	9.0%	7.9%	9.1%	7.0%	7.4%	*9.5%*	*10.0%*	Return on Com Equity	*11.0%*
1.8%	3.8%	3.8%	3.0%	2.3%	3.4%	3.4%	4.1%	2.0%	2.4%	*4.5%*	*5.0%*	Retained to Com Eq	*5.0%*
77%	61%	60%	66%	71%	62%	56%	55%	71%	68%	*53%*	*52%*	All Div'ds to Net Prof	*56%*

CAPITAL STRUCTURE as of 6/30/17
Total Debt $746.1 mill. Due in 5 Yrs $174.0 mill.
LT Debt $519.9 mill. LT Interest $35.0 mill. (44% of Cap'l)

Pension Assets-12/16 $376.5 mill.
Oblig. $564.8 mill.

Pfd Stock None

Common Stock 48,018,000 shs.

MARKET CAP: $1.9 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	8.8	25.5	29.1
Other	118.8	116.6	141.5
Current Assets	127.6	142.1	170.6
Accts Payable	66.4	77.8	84.2
Debt Due	40.2	123.3	226.2
Other	41.9	49.1	50.6
Current Liab.	148.5	250.2	361.0

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	2.0%	*2.5%*
"Cash Flow"	5.0%	3.5%	*5.0%*
Earnings	4.0%	3.0%	*9.0%*
Dividends	1.5%	2.0%	*6.5%*
Book Value	5.0%	5.0%	*3.0%*

Calendar	QUARTERLY REVENUES ($ mill.) [E] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	110.5	158.4	191.2	137.4	597.5
2015	122.0	144.4	183.5	138.4	588.3
2016	121.7	152.4	184.3	151.0	609.4
2017	122.0	171.1	*200*	*156.9*	*650*
2018	*140*	*170*	*205*	*160*	*675*

Calendar	EARNINGS PER SHARE [A] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2014	d.11	.36	.70	.24	1.19
2015	.03	.21	.52	.18	.94
2016	d.02	.24	.48	.31	1.01
2017	.02	.39	*.62*	*.32*	*1.35*
2018	*.07*	*.38*	*.67*	*.33*	*1.45*

Calendar	QUARTERLY DIVIDENDS PAID [B] ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.16	.16	.16	.16	.64
2014	.1625	.1625	.1625	.1625	.65
2015	.1675	.1675	.1675	.1675	.67
2016	.1725	.1725	.1725	.1725	.69
2017	.18	.18	.18		

BUSINESS: California Water Service Group provides regulated and nonregulated water service to 482,400 customers in 100 communities in the state of California. Accounts for over 94% of total customers. Also operates in Washington, New Mexico, and Hawaii. Main service areas: San Francisco Bay area, Sacramento Valley, Salinas Valley, San Joaquin Valley & parts of Los Angeles. Acquired Rio Grande Corp; West Hawaii Utilities (9/08). Revenue breakdown, '16: residential, 72%; business, 20%; industrial, 4%; public authorities, 3%; other 1%. Off. and dir. own 1% of common stock (4/17 proxy). Has 1,163 employees. Pres. and CEO: Martin A. Kropelnicki Inc.: DE. Addr.: 1720 North First St., San Jose, CA 95112-4598. Tel.: 408-367-8200. Internet: www.calwatergroup.com.

California Water Service Group benefited from favorable rate activity in the second quarter. The regulated water provider saw revenues surge to $171 million, a 12% annual improvement, and a 40% increase on a sequential basis. The advance can largely be attributed to recent rate changes by the California regulatory authority (effective earlier this year). Specifically, rate increases alone added more than $17 million to the top line in the June period, with unbilled revenue accounting for the remainder of gains.

Profits are on the right track. California Water earned $0.39 a share in the second quarter, besting our $0.35 call. Lower incremental drought costs were positive, but the real takeaway was the 280-basis-point decline in operating expenses, notably slimmer maintenance and administrative costs. Our 2017 bottom-line estimate of $1.35 a share remains intact, equating to year-over-year growth of 34%.

We are tacking $10 million onto our current-year revenue estimate, to $650 million. This is partly owing to the strong second-quarter showing, but also factors in the higher base rate going forward. Meanwhile, our 2018 top-line forecast is unchanged, at $675 million.

The long-term story hasn't changed much. Acquisitions and capital spending remain the main themes here. The company has ample funding to allocate to infrastructure upgrades and water system improvements. Year to date, CWT has spent just over $100 million on investments, leaving approximately $450 million-$500 million at its disposal. Further, bolt-on acquisitions are a possible avenue to explore should management want to supplement organic growth. All this, along with continued inquiry into increased base rates, augurs well for business prospects into next decade.

These shares are trading near all-time highs. No doubt, the market has rewarded the company for returning to growth in 2016, as the stock price is up nearly 75% from last year's lows. This issue is timely (2), and is slated to outperform the year-ahead broader market averages. However, due to the run-up in price, total return potential over the 3- to 5-year stretch is below average.

Nicholas P. Patrikis *October 13, 2017*

(A) Basic EPS. Excl. nonrecurring gain (loss): '01, 2¢; '02, 4¢; '11, 4¢. Next earnings report due late November.
(B) Dividends historically paid in late Feb., May, Aug., and Nov. ■ Div'd reinvestment plan available.
(C) Incl. intangible assets. In '16 : $21.9 mill., $0.46/sh.
(D) In millions, adjusted for splits.
(E) Excludes non-reg. rev.

Company's Financial Strength	B++
Stock's Price Stability	80
Price Growth Persistence	35
Earnings Predictability	70

CONNECTICUT WATER NDQ-CTWS

RECENT PRICE 60.93 | P/E RATIO 27.8 (Trailing: 30.5 Median: 20.0) | RELATIVE P/E RATIO 1.39 | DIV'D YLD 2.0% | VALUE LINE

TIMELINESS 3 Raised 10/13/17
SAFETY 3 New 1/18/13
TECHNICAL 3 Lowered 10/13/17
BETA .65 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	60	(Nil)	2%
Low	40	(-35%)	-7%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	0	0	0	0	0	0	0	0	0
Options	0	5	0	1	0	0	0	0	0
to Sell	0	0	0	0	0	0	0	0	1

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	59	48	55
to Sell	45	56	44
Hld's(000)	5436	6170	6289

High:	27.7	25.6	29.0	26.4	27.9	29.1	32.8	36.4	37.5	39.9	58.3	62.2
Low:	20.3	22.4	19.3	17.3	20.0	23.3	26.2	27.8	31.0	33.2	37.5	50.8

LEGENDS
1.30 x Dividends p sh divided by Interest Rate
Relative Price Strength
Options: Yes
Shaded area indicates recession

Target Price Range 2020 | 2021 | 2022

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	21.8	16.4
3 yr.	96.8	31.5
5 yr.	113.5	88.9

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
5.93	5.77	5.91	6.04	5.81	5.68	7.05	7.24	6.93	7.65	7.93	9.47	8.29	8.45	8.58	8.77	9.00	9.60	Revenues per sh	12.80
1.78	1.78	1.89	1.91	1.62	1.52	1.90	1.95	1.93	2.04	2.11	2.64	2.63	2.97	3.18	3.31	3.40	3.50	"Cash Flow" per sh	3.85
1.13	1.12	1.15	1.16	.88	.81	1.05	1.11	1.19	1.13	1.13	1.53	1.66	1.92	2.04	2.08	2.20	2.35	Earnings per sh A	2.65
.80	.81	.83	.84	.85	.86	.87	.88	.90	.92	.94	.96	.98	1.01	1.05	1.12	1.18	1.24	Div'd Decl'd per sh B■	1.40
1.86	1.98	1.49	1.58	1.96	1.96	2.24	2.44	3.28	3.06	2.61	2.79	3.02	4.11	4.29	5.93	4.50	4.35	Cap'l Spending per sh	3.35
9.25	10.06	10.46	10.94	11.52	11.60	11.95	12.23	12.67	13.05	13.50	20.95	17.92	18.83	20.01	20.98	21.70	21.65	Book Value per sh D	22.80
7.65	7.94	7.97	8.04	8.17	8.27	8.38	8.46	8.57	8.68	8.76	8.85	11.04	11.12	11.19	11.25	11.75	12.00	Common Shs Outst'g C	12.50
21.5	24.3	23.5	22.9	28.6	29.0	23.0	22.2	18.4	20.7	23.0	19.4	18.4	17.5	17.6	23.3	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	19.0
1.10	1.33	1.34	1.21	1.52	1.57	1.22	1.34	1.23	1.32	1.44	1.23	1.03	.92	.89	1.22			Relative P/E Ratio	1.20
3.3%	3.0%	3.0%	3.1%	3.4%	3.6%	3.6%	3.6%	4.1%	3.9%	3.6%	3.2%	3.2%	3.0%	2.9%	2.3%			Avg Ann'l Div'd Yield	2.8%
						59.0	61.3	59.4	66.4	69.4	83.8	91.5	94.0	96.0	98.7	106	115	Revenues ($mill)	160
						8.8	9.4	10.2	9.8	9.9	13.6	18.3	21.3	22.8	23.4	26.0	28.0	Net Profit ($mill)	32.0
						32.4%	27.2%	19.5%	35.2%	41.3%	32.0%	28.0%	14.4%	3.5%	9.9%	19.0%	20.0%	Income Tax Rate	28.0%
						--	1.7%	--	--	--	1.7%	2.0%	2.4%	2.3%	5.1%	3.0%	2.5%	AFUDC % to Net Profit	2.5%
						47.6%	46.9%	50.6%	49.5%	53.2%	49.0%	46.9%	45.7%	44.1%	45.4%	46.5%	47.0%	Long-Term Debt Ratio	46.5%
						51.8%	52.7%	49.1%	50.2%	46.5%	50.8%	52.9%	54.1%	55.7%	54.4%	53.5%	53.0%	Common Equity Ratio	53.5%
						193.2	196.5	221.3	225.6	254.2	364.6	373.6	386.8	402.4	433.8	475	490	Total Capital ($mill)	535
						284.3	302.3	325.2	344.2	362.4	447.9	471.9	506.9	546.3	601.4	615	635	Net Plant ($mill)	675
						5.5%	5.9%	5.5%	5.4%	4.9%	4.8%	5.9%	6.4%	6.5%	6.3%	6.0%	6.5%	Return on Total Cap'l	7.0%
						8.7%	9.0%	9.3%	8.6%	8.3%	7.3%	9.2%	10.1%	10.1%	9.9%	10.0%	11.0%	Return on Shr. Equity	11.5%
						8.7%	9.1%	9.4%	8.7%	8.3%	7.3%	9.2%	10.2%	10.1%	9.9%	10.0%	11.0%	Return on Com Equity	11.5%
						1.6%	1.9%	2.3%	1.6%	1.4%	2.8%	3.8%	4.8%	4.9%	4.6%	4.5%	5.0%	Retained to Com Eq	5.5%
						82%	79%	76%	81%	83%	62%	59%	53%	52%	54%	54%	53%	All Div'ds to Net Prof	53%

CAPITAL STRUCTURE as of 6/30/17
Total Debt $210.6 mill. Due in 5 Yrs $19.8 mill.
LT Debt $205.4 mill. LT Interest $7.7 mill. (45% of Cap'l)

Leases, Uncapitalized: Annual rentals $.3 mill.
Pension Assets-12/16 $62.7 mill. Oblig. $79.3 mill.

Pfd Stock $0.8 mill. Pfd Divd NMF

Common Stock 11,575,400 shs.

MARKET CAP: $700 million (Small Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	.7	1.6	2.7
Accounts Receivable	11.0	13.0	12.9
Other	15.3	14.8	16.6
Current Assets	27.0	29.4	32.2
Accts Payable	11.9	13.1	9.6
Debt Due	2.8	4.9	5.2
Other	22.2	37.1	47.8
Current Liab.	36.9	55.1	62.6

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	3.0%	7.0%
"Cash Flow"	6.5%	9.5%	3.5%
Earnings	8.0%	12.0%	4.5%
Dividends	2.5%	3.0%	4.5%
Book Value	6.0%	9.0%	2.5%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	20.3	25.4	27.6	20.7	94.0
2015	20.0	26.6	28.4	21.0	96.0
2016	21.6	26.1	29.5	21.5	98.7
2017	22.5	27.9	32.0	23.6	106
2018	25.0	30.0	35.0	25.0	115

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.27	.67	.76	.22	1.92
2015	.28	.77	.79	.20	2.04
2016	.28	.89	.84	.07	2.08
2017	.36	.73	.88	.23	2.20
2018	.35	.80	.90	.30	2.35

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.2425	.2425	.2475	.2475	.98
2014	.2475	.2475	.2575	.2575	1.01
2015	.2575	.2575	.2675	.2675	1.05
2016	.2675	.2825	.2825	.2825	1.12
2017	.2825	.2975	.2975		

BUSINESS: Connecticut Water Service, Inc. is a non-operating holding company, whose income is derived from earnings of its wholly-owned subsidiary companies (regulated water utilities). In 2016, 95% of net income was derived from these activities. Provides water services to 440,000 people in 79 municipalities throughout Connecticut and Maine. Acquired The Maine Water Company, January, 2012; Biddeford and Saco Water, December, 2012; Heritage Village, February, 2017. Inc.: Conn.. Has 266 employees. Chairman/President/Chief Executive Officer: Eric W. Thornburg. Officers and directors own 2.5% of the common stock; BlackRock, Inc., 7.2% (4/17 proxy). Address: 93 West Main Street, Clinton, CT 06413. Telephone: (860) 669-8636. Internet: www.ctwater.com.

Connecticut Water Service delivered second-quarter results that fell short of our expectations. Revenues of $27.9 million improved marginally, on a year-over-year basis, but missed our $28.5 million call. The July period included a full quarter of Heritage Village operations, as well as incremental surcharges in both Connecticut and Maine. Not until the third quarter will the completed acquisition (July 1st) of the Avon Water Company be included in the financials. Similarly, the bottom line was a nickel shy of our estimate, at $0.73 a share. Net income was adversely impacted by several cents due to greater business development costs associated with the above-mentioned deals. Nonetheless, Connecticut Water should right the ship in the recently concluded third quarter, as we look for revenues of $32 million and share net of $0.88.

There has been some activity on the rate front. Earlier this summer, The Maine Water Company filed for a rate increase (pending approval from the Maine Public Utilities Commission) in its Biddeford and Saco division. This could potentially add about $2 million to the top line. Additionally, the company filed for a rate increase of 1.6% on WICA (recovered funds from infrastructure upgrades.)

Long term, acquisitions and higher capital spending are likely in the cards. Indeed, the strategy is starting to bear fruit, as CTWS lifted its customer base by nearly 9,500 via its Avon and Heritage purchases. Financials results should feel the effects beginning in the second half of this year. Moreover, Connecticut plans to take full advantage of WICA and WISC benefits (increase to WICA surcharge pending), and ought to continue to replace aging water mains in the coming years.

This equity has slipped a notch in Timeliness to 3, Average. What's more, the current valuation (28.0x 12-month earnings-per-share estimate) is a bit rich when compared to historical norms, and on a peer-to-peer basis. The stock is trading above our 3- to 5-year Target Price Range, and total return potential is subpar. Thus, we recommend investors wait for a better entry point before committing funds here.

Nicholas P. Patrikis *October 13, 2017*

(A) Diluted earnings. Next earnings report due late November.
(B) Dividends historically paid in mid-March, June, September, and December. ■ Div'd reinvestment plan available.
(C) In millions
(D) Includes intangibles. In 2016: $30.4 million/$2.70 a share.

Company's Financial Strength	B+
Stock's Price Stability	90
Price Growth Persistence	50
Earnings Predictability	90

MIDDLESEX WATER NDQ-MSEX

RECENT PRICE 40.47 | P/E RATIO 26.3 (Trailing: 30.4 Median: 20.0) | RELATIVE P/E RATIO 1.32 | DIV'D YLD 2.1% | VALUE LINE

TIMELINESS 4 Lowered 7/7/17
SAFETY 2 New 10/21/11
TECHNICAL 3 Raised 7/14/17
BETA .80 (1.00 = Market)

2020-22 PROJECTIONS

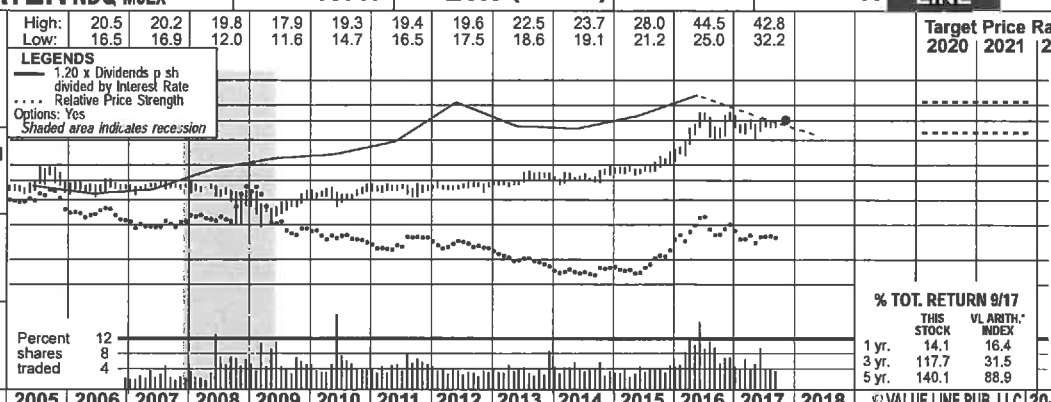
	Price	Gain	Ann'l Total Return
High	50	(+25%)	8%
Low	35	(-15%)	-1%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	0	0	0	0	0	0	0	0	0
Options	0	0	0	0	7	0	0	0	0
to Sell	0	0	1	1	0	0	0	0	0

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	40	45	60
to Sell	62	51	44
Hld's(000)	7874	9400	9201



2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
5.87	5.98	6.12	6.25	6.44	6.16	6.50	6.79	6.75	6.60	6.50	6.98	7.19	7.26	7.77	8.16	*8.30*	*8.65*	Revenues per sh	*9.40*
1.18	1.20	1.15	1.28	1.33	1.33	1.49	1.53	1.40	1.55	1.46	1.56	1.72	1.84	1.97	2.17	*2.35*	*2.50*	"Cash Flow" per sh	*3.10*
.66	.73	.61	.73	.71	.82	.87	.89	.72	.96	.84	.90	1.03	1.13	1.22	1.38	*1.48*	*1.60*	Earnings per sh A	*2.05*
.62	.63	.65	.66	.67	.68	.69	.70	.71	.72	.73	.74	.75	.76	.78	.81	*.84*	*.87*	Div'd Decl'd per sh B■	*1.02*
1.25	1.59	1.87	2.54	2.18	2.31	1.66	2.12	1.49	1.90	1.50	1.36	1.26	1.40	1.59	2.91	*1.80*	*1.90*	Cap'l Spending per sh	*2.05*
7.11	7.39	7.60	8.02	8.26	9.52	10.05	10.03	10.33	11.13	11.27	11.48	11.82	12.24	12.74	13.40	*13.95*	*14.35*	Book Value per sh	*16.45*
10.17	10.36	10.48	11.36	11.58	13.17	13.25	13.40	13.52	15.57	15.70	15.82	15.96	16.12	16.23	16.30	*16.50*	*16.75*	Common Shs Outst'g C	*17.00*
24.6	23.5	30.0	26.4	27.4	22.7	21.6	19.8	21.0	17.8	21.7	20.8	19.7	18.5	19.1	25.6	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*21.0*
1.26	1.28	1.71	1.39	1.46	1.23	1.15	1.19	1.40	1.13	1.36	1.32	1.11	.97	.96	1.35			Relative P/E Ratio	*1.30*
3.8%	3.7%	3.5%	3.4%	3.5%	3.7%	3.7%	4.0%	4.7%	4.2%	4.0%	4.0%	3.7%	3.7%	3.3%	2.3%			Avg Ann'l Div'd Yield	*2.4%*
						86.1	91.0	91.2	102.7	102.1	110.4	114.8	117.1	126.0	132.9	*137*	*145*	Revenues ($mill)	*160*
						11.8	12.2	10.0	14.3	13.4	14.4	16.6	18.4	20.0	22.7	*24.5*	*27.0*	Net Profit ($mill)	*35.0*
						32.6%	33.2%	34.1%	32.1%	32.7%	33.9%	34.1%	35.0%	34.5%	34.0%	*35.0%*	*36.0%*	Income Tax Rate	*37.0%*
						--	--	--	6.8%	6.1%	3.4%	1.9%	1.7%	1.9%	2.7%	*2.0%*	*2.0%*	AFUDC % to Net Profit	*2.5%*
						49.0%	45.6%	46.6%	43.1%	42.3%	41.5%	40.4%	40.5%	39.4%	37.9%	*37.5%*	*37.5%*	Long-Term Debt Ratio	*37.5%*
						49.6%	51.8%	52.1%	55.8%	56.6%	57.4%	58.7%	58.8%	59.8%	61.5%	*62.0%*	*62.0%*	Common Equity Ratio	*62.0%*
						268.8	259.4	267.9	310.5	312.5	316.5	321.4	335.8	345.4	355.4	*370*	*385*	Total Capital ($mill)	*455*
						333.9	366.3	376.5	405.9	422.2	435.2	446.5	465.4	481.9	517.8	*525*	*535*	Net Plant ($mill)	*575*
						5.6%	5.8%	5.0%	5.7%	5.2%	5.4%	5.9%	6.3%	6.6%	7.1%	*7.5%*	*7.5%*	Return on Total Cap'l	*8.0%*
						8.6%	8.6%	7.0%	8.1%	7.5%	7.8%	8.7%	9.2%	9.6%	10.3%	*10.5%*	*11.0%*	Return on Shr. Equity	*12.5%*
						8.7%	8.9%	7.0%	8.2%	7.5%	7.8%	8.7%	9.3%	9.6%	10.3%	*10.5%*	*11.0%*	Return on Com Equity	*12.5%*
						1.8%	2.0%	.1%	2.1%	1.0%	1.4%	2.4%	3.1%	3.5%	4.3%	*4.5%*	*5.0%*	Retained to Com Eq	*6.0%*
						79%	78%	98%	75%	87%	83%	73%	67%	63%	58%	*57%*	*54%*	All Div'ds to Net Prof	*50%*

CAPITAL STRUCTURE as of 6/30/17
Total Debt $159.6 mill. **Due in 5 Yrs** $32.1 mill.
LT Debt $136.4 mill. **LT Interest** $6.0 mill.
(Total interest coverage: 8.6x)
(38% of Cap'l)

Pension Assets-12/16 $59.4 mill.
Oblig. $78.6 mill.
Pfd Stock $2.4 mill. **Pfd Div'd:** $.1 mill.

Common Stock 16,337,784 shs.
as of 7/31/17

MARKET CAP: $650 million (Small Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	3.5	3.9	3.7
Other	20.9	22.8	26.0
Current Assets	24.4	26.7	29.7
Accts Payable	6.5	12.3	15.0
Debt Due	8.7	18.2	23.2
Other	13.1	16.6	17.2
Current Liab.	28.3	47.1	55.4

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	2.0%	3.0%	*3.5%*
"Cash Flow"	4.5%	6.5%	*7.5%*
Earnings	5.0%	8.0%	*8.5%*
Dividends	1.5%	1.5%	*4.5%*
Book Value	4.0%	3.0%	*4.5%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	27.1	29.2	32.7	28.1	117.1
2015	28.8	31.7	34.7	30.8	126.0
2016	30.6	32.7	37.8	31.8	132.9
2017	30.1	33.0	*39.0*	*34.9*	*137*
2018	*33.0*	*37.0*	*40.0*	*35.0*	*145*

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.20	.29	.42	.22	1.13
2015	.22	.31	.41	.28	1.22
2016	.29	.36	.54	.19	1.38
2017	.27	.33	*.55*	*.33*	*1.48*
2018	*.33*	*.38*	*.57*	*.32*	*1.60*

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.1875	.1875	.1875	.19	.75
2014	.19	.19	.19	.1925	.76
2015	.1925	.1925	.1925	.19875	.78
2016	.19875	.19875	.19875	.21125	.81
2017	.21125	.21125	.21125		

BUSINESS: Middlesex Water Company engages in the ownership and operation of regulated water utility systems in New Jersey, Delaware, and Pennsylvania. It also operates water and wastewater systems under contract on behalf of municipal and private clients in NJ and DE. Its Middlesex System provides water services to 61,000 retail customers, primarily in Middlesex County, New Jersey. In 2016, the Middlesex System accounted for 60% of operating revenues. At 12/31/16, the company had 309 employees. Incorporated: NJ. President, CEO, and Chairman: Dennis W. Doll. Officers & directors own 3.5% of the common stock; BlackRock Institutional Trust Co., 7.2% (4/17 proxy). Add.: 1500 Ronson Road, Iselin, NJ 08830. Tel.: 732-634-1500. Internet: www.middlesexwater.com.

Middlesex Water Company reported soft results for the second quarter. Following a somewhat colder (longer) winter season, customer water usage picked up only moderately through the late spring into early summer months. Indeed, the volatile Northeast region of the U.S. (MSEX's main area of operation) leaves the company subject to weather disruptions. First-quarter revenues came in roughly flat, year over year, at $33.0 million. Delaware operations registered a modest gain thanks to new customer additions, while its New Jersey segment slipped due to a continued trend of weak water consumption. Similar to the first quarter, net income took a step back, compared to the year-earlier figure. Share net of $0.33 missed our mark by $0.04, with increased water production costs weighing on profits.

Our current-year top- and bottom-line estimates are being modestly reduced. We now expect Middlesex to earn $1.48 a share (-$0.02 less than our previous call), on $137 million in revenues (-$1 million).

Infrastructure upgrades are still management's main focus. Under its recently established RENEW program and Water for Tomorrow initiative, the company aims to allocate nearly $12 million in each of the next three years to bolster its water transmission capabilities by replacing old water mains, valves, and services lines throughout New Jersey. Total capital spending on its water distribution infrastructure (approximately $200 million through next decade) ought to be closely monitored, with a portion of those corresponding investment costs being recovered by appropriate rate filings. Finally, a slow but sure pickup in consumption from New Jersey residents should provide an extra boost to the top line further out.

Our Timeliness Ranking System pegs shares of Middlesex Water Company as year-ahead market laggards (4, Below Average). In the same breath, the issue offers unattractive total return potential over the 3- to 5-year pull, and its dividend yield, though average, pales in comparison to its historical norms. Therefore, we suggest investors stay on the sidelines, for now.

Nicholas P. Patrikis *October 13, 2017*

(A) Diluted earnings. Next earnings report due early November.
(B) Dividends historically paid in mid-Feb., May, Aug., and November.■ Div'd reinvestment plan available.
(C) In millions, adjusted for split.

Company's Financial Strength	B++
Stock's Price Stability	70
Price Growth Persistence	40
Earnings Predictability	85

SJW GROUP NYSE-SJW

RECENT PRICE 57.60 | P/E RATIO 22.7 (Trailing: 21.6 Median: 23.0) | RELATIVE P/E RATIO 1.13 | DIV'D YLD 1.5% | VALUE LINE

TIMELINESS 3 Raised 6/30/17
SAFETY 3 New 4/22/11
TECHNICAL 3 Lowered 8/11/17
BETA .75 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	80	(+40%)	10%
Low	55	(-5%)	1%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	0	0	0	0	0	0	0	0	0
Options	0	8	0	6	8	0	0	0	0
to Sell	1	1	1	0	0	0	0	0	1

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	81	83	67
to Sell	59	59	73
Hld's(000)	9218	10726	10969

High: 45.3 43.0 35.1 30.4 28.2 26.8 26.9 30.1 33.7 35.7 56.9 57.8
Low: 21.2 27.7 20.0 18.2 21.6 20.9 22.6 24.5 25.5 27.5 28.6 45.4

LEGENDS
1.50 x Dividends p sh divided by Interest Rate
Relative Price Strength
3-for-1 split 3/04
2-for-1 split 3/06
Options: Yes
Shaded area indicates recession

Target Price Range 2020 | 2021 | 2022

Percent shares traded 15 10 5

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	31.8	16.4
3 yr.	124.9	31.5
5 yr.	151.9	88.9

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
7.45	7.97	8.20	9.14	9.86	10.35	11.25	12.12	11.68	11.62	12.85	14.01	13.73	15.76	14.97	16.61	*17.15*	*16.80*	Revenues per sh	*20.65*
1.49	1.55	1.75	1.89	2.21	2.38	2.30	2.44	2.21	2.38	2.80	2.97	2.90	4.42	3.86	4.76	*4.60*	*4.65*	"Cash Flow" per sh	*5.15*
.77	.78	.91	.87	1.12	1.19	1.04	1.08	.81	.84	1.11	1.18	1.12	2.54	1.85	2.57	*2.45*	*2.60*	Earnings per sh A	*3.00*
.43	.46	.49	.51	.53	.57	.61	.65	.66	.68	.69	.71	.73	.75	.78	.81	*.87*	*.93*	Div'd Decl'd per sh B■	*1.12*
2.63	2.06	3.41	2.31	2.83	3.87	6.62	3.79	3.17	5.65	3.75	5.67	4.68	5.02	5.24	6.95	*6.00*	*5.50*	Cap'l Spending per sh	*5.00*
8.17	8.40	9.11	10.11	10.72	12.48	12.90	13.99	13.66	13.75	14.20	14.71	15.92	17.75	18.83	20.61	*21.20*	*21.60*	Book Value per sh	*23.90*
18.27	18.27	18.27	18.27	18.27	18.28	18.36	18.18	18.50	18.55	18.59	18.67	20.17	20.29	20.38	20.46	*21.00*	*22.00*	Common Shs Outst'g C	*23.00*
18.5	17.3	15.4	19.6	19.7	23.5	33.4	26.2	28.7	29.1	21.2	20.4	24.3	11.2	16.6	15.7	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*22.0*
.95	.94	.88	1.04	1.05	1.27	1.77	1.58	1.91	1.85	1.33	1.30	1.37	.59	.84	.83			Relative P/E Ratio	*1.40*
3.0%	3.4%	3.5%	3.0%	2.4%	2.0%	1.7%	2.3%	2.8%	2.8%	2.9%	3.0%	2.7%	2.6%	2.5%	2.0%			Avg Ann'l Div'd Yield	*1.7%*
						206.6	220.3	216.1	215.6	239.0	261.5	276.9	319.7	305.1	339.7	*360*	*370*	Revenues ($mill)	*475*
						19.3	20.2	15.2	15.8	20.9	22.3	23.5	51.8	37.9	52.8	*51.0*	*57.0*	Net Profit ($mill)	*69.0*
						39.4%	39.5%	40.4%	38.8%	41.1%	41.1%	38.7%	32.5%	38.1%	38.8%	*39.0%*	*39.0%*	Income Tax Rate	*39.0%*
						2.7%	2.3%	2.0%	--	--	--	--	--	2.0%	1.0%	*1.5%*	*1.5%*	AFUDC % to Net Profit	*1.5%*
						47.7%	46.0%	49.4%	53.7%	56.6%	55.0%	51.1%	51.6%	49.8%	50.7%	*49.0%*	*48.5%*	Long-Term Debt Ratio	*49.0%*
						52.3%	54.0%	50.6%	46.3%	43.4%	45.0%	48.9%	48.4%	50.2%	49.3%	*51.0%*	*51.5%*	Common Equity Ratio	*51.0%*
						453.2	470.9	499.6	550.7	607.9	610.2	656.2	744.5	764.6	855.0	*870*	*925*	Total Capital ($mill)	*1075*
						645.5	684.2	718.5	785.5	756.2	831.6	898.7	963.0	1036.8	1146.4	*1200*	*1250*	Net Plant ($mill)	*1325*
						5.7%	5.8%	4.4%	4.3%	4.9%	5.0%	5.0%	8.3%	6.3%	7.4%	*7.0%*	*7.5%*	Return on Total Cap'l	*7.5%*
						8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	*11.5%*	*12.0%*	Return on Shr. Equity	*12.5%*
						8.2%	8.0%	6.0%	6.2%	7.9%	8.1%	7.3%	14.4%	9.9%	12.5%	*11.5%*	*12.0%*	Return on Com Equity	*12.5%*
						3.5%	3.3%	1.2%	1.2%	3.1%	3.3%	2.8%	10.2%	5.7%	8.6%	*7.5%*	*7.5%*	Retained to Com Eq	*8.0%*
						57%	59%	80%	80%	61%	59%	62%	29%	42%	31%	*36%*	*36%*	All Div'ds to Net Prof	*37%*

CAPITAL STRUCTURE as of 6/30/17
Total Debt $430.9 mill. Due in 5 Yrs $14.3 mill.
LT Debt $430.9 mill. LT Interest $20.0 mill. (50% of Cap'l)

Leases, Uncapitalized: Annual rentals $6.6 mill.

Pension Assets-12/16 $113.9 mill.
Oblig. $174.1 mill.

Pfd Stock None.

Common Stock 20,506,494 shs.

MARKET CAP: $1.2 billion (Mid Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	5.2	25.3	9.2
Accts Receivable	16.4	16.4	20.6
Other	51.8	57.9	43.1
Current Assets	73.4	99.6	72.9
Accts Payable	16.2	18.7	27.1
Debt Due	38.1	14.3	--
Other	25.3	30.6	43.3
Current Liab.	79.6	63.6	70.4

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	5.0%	5.5%	*4.5%*
"Cash Flow"	7.0%	12.0%	*3.0%*
Earnings	8.0%	20.5%	*4.5%*
Dividends	4.0%	3.0%	*6.0%*
Book Value	5.5%	6.5%	*4.0%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	54.6	70.4	125.4	69.3	319.7
2015	62.1	72.4	83.0	87.6	305.1
2016	61.1	86.9	112.3	79.4	339.7
2017	69.0	102.1	*102*	*87.0*	*360*
2018	*70.0*	*105*	*105*	*90.0*	*370*

Calendar	EARNINGS PER SHARE A Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.04	.34	1.88	.28	2.54
2015	.23	.36	.46	.80	1.85
2016	.16	.82	.92	.67	2.57
2017	.18	.90	*.75*	*.62*	*2.45*
2018	*.27*	*.88*	*.80*	*.65*	*2.60*

Calendar	QUARTERLY DIVIDENDS PAID B■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.1825	.1825	.1825	.1825	.73
2014	.1875	.1875	.1875	.1875	.75
2015	.1950	.1950	.1950	.1950	.78
2016	.2025	.2025	.2025	.2025	.81
2017	.2175	.2175	.2175		

BUSINESS: SJW Group engages in the production, purchase, storage, purification, distribution, and retail sale of water. It provides water service to approximately 229,000 connections with a total population of roughly one million people in the San Jose area and 13,000 connections that reaches about 39,000 residents in the region between San Antonio and Austin, Texas. The company also offers nonregulated water-related services and owns and operates commercial real estate investments. Has about 406 employees. Officers and directors (including Nancy O. Moss) own 26.9% of outstanding shares (3/17 proxy). Chairman & C.E.O.: Richard Roth. Inc.: California. Address: 110 West Taylor Street, San Jose, CA 95110. Telephone: (408) 279-7800. Internet: www.sjwater.com.

SJW Group is making a change at the helm. Current President and Chief Executive Officer Richard Roth announced his retirement effective November 5th. The board of directors has appointed Eric W. Thornburg as a replacement for both positions, as well as a new board member. Mr. Roth will also step down as Chairman, but will serve until the next annual stockholder's meeting.

The second-quarter performance was better than expected. SJW delivered impressive financial results during the June period, underpinned by cumulative rate increases and higher recordings in its water conservation memorandum account. Customer water usage also ramped up in the period. All told, revenues of $102 million rose 17% from the previous-year tally. Meanwhile, water production and operating costs edged higher, but the company managed to report earnings of $0.90 a share. Note, there was a one-time gain on the sale of real estate assets. Still, the bottom line would have exceeded our expectations.

Our financial projections are being raised across the board. We have added $0.25 to our current-year earnings estimate, to $2.45 a share mainly owing to the recent quarter's beat. For 2018, we now look for share net of $2.60 (+$0.25). Revenues for this year and next are being ratcheded up by $15 million and $20 million, to $360 million and $370 million, respectively.

Capital spending ought to be a key growth driver further out. Year to date, SJW has invested $62 million, and will likely allocate more funds to its Montevina project this year. On balance, only a small dent has been made in its $300 million spending budget. Lastly, the company ought to get a better handle on its operating costs, which should provide a modest boost to margins down the road.

SJW Group stock does not jump out at us at the current quotation. Shares of the San Jose utility have surged almost 15% in value since our July review. Even after raising our 2020-2022 Target Price Range, the issue presents lackluster total return potential over the long haul. Moreover, the dividend yield is below the *Value Line* median.

Nicholas P. Patrikis *October 13, 2017*

(A) Diluted earnings. Excludes nonrecurring losses: '03, $1.97; '04, $3.78; '05, $1.09; '06, $16.36; '08, $1.22; '10, $0.46. GAAP accounting as of 2013. Next earnings report due late November. Quarterly earnings may not add due to rounding.
(B) Dividends historically paid in early March, June, September, and December. ■ Div'd reinvestment plan available.
(C) In millions, adjusted for stock splits.

Company's Financial Strength	B+
Stock's Price Stability	70
Price Growth Persistence	35
Earnings Predictability	45

YORK WATER NDQ-YORW

RECENT PRICE 35.05 | P/E RATIO 34.4 (Trailing: 37.7 Median: 24.0) | RELATIVE P/E RATIO 1.72 | DIV'D YLD 1.8% | VALUE LINE

TIMELINESS 4 Lowered 8/25/17
SAFETY 3 Lowered 7/17/15
TECHNICAL 2 Raised 10/13/17
BETA .80 (1.00 = Market)

2020-22 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	40	(+15%)	6%
Low	25	(-30%)	-5%

Insider Decisions

	D	J	F	M	A	M	J	J	A
to Buy	1	1	1	1	13	2	2	13	2
Options	1	0	0	0	0	13	0	0	0
to Sell	0	0	0	0	0	0	0	0	0

Institutional Decisions

	4Q2016	1Q2017	2Q2017
to Buy	46	38	42
to Sell	34	33	33
Hld's(000)	4284	5127	5206

High: 21.0 18.5 16.5 18.0 18.0 18.1 18.5 22.0 24.3 26.7 39.8 39.9
Low: 15.3 15.5 6.2 9.7 12.8 15.8 16.8 17.6 18.8 19.7 23.8 31.7

LEGENDS
1.10 x Dividends p sh divided by Interest Rate
Relative Price Strength
3-for-2 split 9/06
Options: Yes
Shaded area indicates recession

Target Price Range 2020 | 2021 | 2022

64 48 40 32 24 20 16 12 8 6

Percent shares traded 12 8 4

% TOT. RETURN 9/17

	THIS STOCK	VL ARITH.* INDEX
1 yr.	16.3	16.4
3 yr.	80.9	31.5
5 yr.	107.4	88.9

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	© VALUE LINE PUB. LLC	20-22
2.05	2.05	2.17	2.18	2.58	2.56	2.79	2.89	2.95	3.07	3.18	3.21	3.27	3.58	3.68	3.70	*3.90*	*4.10*	Revenues per sh	*5.65*
.59	.57	.65	.65	.79	.77	.86	.88	.95	1.07	1.09	1.12	1.19	1.36	1.45	1.42	*1.60*	*1.65*	"Cash Flow" per sh	*2.05*
.43	.40	.47	.49	.56	.58	.57	.57	.64	.71	.71	.72	.75	.89	.97	.92	*1.00*	*1.05*	Earnings per sh [A]	*1.40*
.34	.35	.37	.39	.42	.45	.48	.49	.51	.52	.53	.54	.55	.57	.60	.63	*.66*	*.70*	Div'd Decl'd per sh [B]	*.90*
.75	.66	1.07	2.50	1.69	1.85	1.69	2.17	1.18	.83	.74	.94	.76	1.10	1.11	1.03	*1.50*	*1.25*	Cap'l Spending per sh	*.85*
3.79	3.90	4.06	4.65	4.85	5.84	5.97	6.14	6.92	7.19	7.45	7.73	7.98	8.15	8.51	8.88	*9.15*	*9.55*	Book Value per sh	*11.00*
9.46	9.55	9.63	10.33	10.40	11.20	11.27	11.37	12.56	12.69	12.79	12.92	12.98	12.83	12.81	12.85	*12.90*	*12.75*	Common Shs Outst'g [C]	*12.00*
17.8	26.9	24.5	25.7	26.3	31.2	30.3	24.6	21.9	20.7	23.9	24.4	26.3	23.1	23.5	32.8	*Bold figures are Value Line estimates*		Avg Ann'l P/E Ratio	*22.5*
.91	1.47	1.40	1.36	1.40	1.68	1.61	1.48	1.46	1.32	1.50	1.55	1.48	1.22	1.18	1.72			Relative P/E Ratio	*1.40*
4.4%	3.3%	3.2%	3.1%	2.9%	2.5%	2.8%	3.5%	3.6%	3.5%	3.1%	3.1%	2.8%	2.8%	2.6%	2.1%			Avg Ann'l Div'd Yield	*2.8%*
31.4	32.8	37.0	39.0	40.6	41.4	42.4	45.9	47.1	47.6	*50.0*	*52.0*	Revenues ($mill)	*68.0*
6.4	6.4	7.5	8.9	9.1	9.3	9.7	11.5	12.5	11.8	*13.0*	*13.5*	Net Profit ($mill)	*17.0*
36.5%	36.1%	37.9%	38.5%	35.3%	37.6%	37.6%	29.8%	27.5%	31.3%	*29.0%*	*30.0%*	Income Tax Rate	*31.5%*
3.6%	10.1%	--	1.2%	1.1%	1.1%	.8%	1.8%	1.6%	1.9%	*1.5%*	*1.5%*	AFUDC % to Net Profit	*1.0%*
46.5%	54.5%	45.7%	48.3%	47.1%	46.0%	45.1%	44.8%	44.4%	42.6%	*43.5%*	*44.0%*	Long-Term Debt Ratio	*45.0%*
53.5%	45.5%	54.3%	51.7%	52.9%	54.0%	54.9%	55.2%	55.6%	57.4%	*56.5%*	*56.0%*	Common Equity Ratio	*55.0%*
125.7	153.4	160.1	176.4	180.2	184.8	188.4	189.4	196.3	198.7	*210*	*215*	Total Capital ($mill)	*240*
191.6	211.4	222.0	228.4	233.0	240.3	244.2	253.2	261.4	270.9	*275*	*280*	Net Plant ($mill)	*295*
6.7%	5.7%	6.2%	6.5%	6.4%	6.4%	6.5%	7.4%	7.6%	7.2%	*7.5%*	*7.5%*	Return on Total Cap'l	*8.0%*
9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	*11.0%*	*11.0%*	Return on Shr. Equity	*12.5%*
9.5%	9.2%	8.6%	9.8%	9.5%	9.3%	9.3%	11.0%	11.5%	10.4%	*11.0%*	*11.0%*	Return on Com Equity	*12.5%*
1.7%	1.4%	1.9%	2.7%	2.5%	2.4%	2.4%	3.9%	4.4%	3.4%	*4.0%*	*3.5%*	Retained to Com Eq	*4.5%*
82%	85%	78%	72%	73%	74%	74%	64%	62%	67%	*66%*	*67%*	All Div'ds to Net Prof	*64%*

CAPITAL STRUCTURE as of 6/30/17
Total Debt $88.2 mill. **Due in 5 Yrs** $30.5 mill.
LT Debt $88.2 mill. **LT Interest** $5.4 mill.
(43% of Cap'l)

Pension Assets 12/16 $35.5 mill.
Oblig. $40.8 mill.

Pfd Stock None

Common Stock 12,845,000 shs.

MARKET CAP: $450 million (Small Cap)

CURRENT POSITION ($MILL.)	2015	2016	6/30/17
Cash Assets	2.9	4.2	--
Accounts Receivable	3.5	4.3	4.2
Inventory (Avg. Cost)	.8	.7	.8
Other	4.6	3.4	3.4
Current Assets	11.8	12.6	8.4
Accts Payable	1.8	3.7	5.1
Debt Due	--	--	--
Other	4.4	4.5	4.7
Current Liab.	6.2	8.2	9.8

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '14-'16 to '20-'22
Revenues	4.0%	3.5%	*7.5%*
"Cash Flow"	6.5%	6.5%	*6.5%*
Earnings	5.5%	6.0%	*7.0%*
Dividends	3.5%	3.0%	*7.0%*
Book Value	5.0%	3.5%	*4.5%*

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	10.6	11.8	12.0	11.5	45.9
2015	11.2	11.9	12.4	11.6	47.1
2016	11.3	11.8	12.6	11.9	47.6
2017	11.3	12.3	*13.4*	*13.0*	*50.0*
2018	*12.2*	*12.7*	*13.8*	*13.3*	*52.0*

Calendar	EARNINGS PER SHARE [A] Mar.31	Jun. 30	Sep. 30	Dec. 31	Full Year
2014	.16	.22	.23	.28	.89
2015	.20	.22	.28	.27	.97
2016	.19	.23	.27	.23	.92
2017	.20	.23	*.29*	*.28*	*1.00*
2018	*.22*	*.24*	*.30*	*.29*	*1.05*

Calendar	QUARTERLY DIVIDENDS PAID [B] Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2013	.138	.138	.138	.138	.552
2014	.1431	.1431	.1431	.1431	.572
2015	.1495	.1495	.1495	.1555	.604
2016	.1555	.1555	.1555	.1602	.627
2017	.1602	.1602	.1602		

BUSINESS: The York Water Company is the oldest investor-owned regulated water utility in the United States. It has operated continuously since 1816. As of December 31, 2016, the company's average daily availability was 35.4 million gallons and its service territory had an estimated population of 196,000. Has more than 67,000 customers. Residential customers accounted for 63% of 2016 revenues; commercial and industrial (29%); other (8%). It also provides sewer billing services. Incorporated: PA. York had 105 full-time employees at 12/31/16. President/CEO: Jeffrey R. Hines. Officers/directors own 1.1% of the common stock (3/17 proxy). Address: 130 East Market Street, York, Pennsylvania 17401. Telephone: (717) 845-3601. Internet: www.yorkwater.com.

Shares of York Water are trading at levels seen three months prior. It has been a relatively quiet summer for the Pennsylvania-based regulated water utility, as the stock price has been somewhat rangebound.

Second-quarter financial results were a mixed bag. Revenues of $12.3 million were in line with our expectations, with help from recent acquisitions and higher surcharges. But the annual jump in revenues did not directly translate to an increase in earnings. Operating expenses, namely maintenance and administrative, rose substantially to almost 39% of total revenues (+240 basis points year over year). Consequently, share net of $0.23 was flat compared to the like-2016 figure.

We are scaling back our 2017 and 2018 share-net estimates accordingly. Due to the rise in operating costs, we are lowering our current-year profit forecast by $0.03, to $1.00 a share. Meanwhile, our 2018 earnings estimate is being reduced by $0.05, to $1.05 a share.

Ensuing benefits from capital expenditures should help offset the uptick in operating costs (lower effective tax rate). York ought to continue to benefit on the tax front thanks to higher maintenance and repair deductions. Year-to-date spending is already 180% above last year's tally. For the remainder of 2017, York estimates an additional $9 million in capital investment on water mains and various infrastructure upgrades. Overall, our model projects top- and bottom-line advances of 5% and 9% this year, and 4% and 5% in the next, respectively.

This issue holds limited investment appeal, at the moment. The stock is an unfavorable selection for relative year-ahead price performance (Timeliness: 4). And from a price-to-earnings perspective, the recent valuation is a bit lofty, in our view. Although York's track record of dividend payout increases is second to none, the current yield is nothing to write home about. Indeed, the recent price surge has pushed the yield below 2.0%, fractionally below the broader market average. All told, those looking to gain exposure to the regulated water utility space will probably find more attractive options elsewhere.

Nicholas P. Patrikis *October 13, 2017*

(A) Diluted earnings. Next earnings report due late November.
(B) Dividends historically paid in late February, June, September, and December.
(C) In millions, adjusted for split.

Company's Financial Strength	B+
Stock's Price Stability	60
Price Growth Persistence	55
Earnings Predictability	95

Carolina Water Service, Inc. of South Carolina
Summary of Risk Premium Models for the
Proxy Group of Eight Water Companies

	Proxy Group of Eight Water Companies
Predictive Risk Premium Model (PRPM) (1)	11.45 %
Risk Premium Using an Adjusted Total Market Approach (2)	9.93 %
Average	10.69 %

Notes:
(1) From page 2 of this Schedule.
(2) From page 3 of this Schedule.

Carolina Water Service, Inc. of South Carolina
Indicated ROE
Derived by the Predictive Risk Premium Model (1)

Proxy Group of Eight Water Companies	[1] LT Average Predicted Variance	[2] Spot Predicted Variance	[3] Average Predicted Variance	[4] GARCH Coefficient	[5] Predicted Risk Premium (2)	[6] Risk-Free Rate (3)	[7] Indicated ROE (4)
American States Water Co.	0.38%	0.31%	0.35%	1.75224	7.61%	3.58%	11.19%
American Water Works Company Inc	NMF	NMF	NMF	5.76835	NMF	3.58%	NMF
Aqua America Inc	0.45%	0.23%	0.34%	2.27726	9.70%	3.58%	13.28%
California Water Service Group	0.32%	0.28%	0.30%	1.94189	7.22%	3.58%	10.80%
Connecticut Water Service Inc	0.29%	0.25%	0.27%	1.94197	6.48%	3.58%	10.06%
Middlesex Water Co.	0.29%	0.37%	0.33%	2.03529	8.36%	3.58%	11.94%
SJW Corp	0.42%	0.40%	0.41%	1.57789	8.05%	3.58%	11.63%
York Water Co.	0.46%	0.41%	0.44%	2.12297	11.80%	3.58%	NMF
						Average	11.48%
						Median	11.41%
						Average of Mean and Median	11.45%

NMF = Not Meaningful Figure

Notes:
(1) The Predictive Risk Premium Model uses historical data to generate a predicted variance and a GARCH coefficient. The historical data used are the equity risk premiums for the first available trading month as reported by Bloomberg Professional Service.
(2) (1+(Column [3] * Column [4])^12) - 1.
(3) From note 2 on page 2 of Schedule DWD-5.
(4) Column [5] + Column [6].

Exhibit No. ___
Schedule DWD-4
Page 2 of 12

Carolina Water Service, Inc. of South Carolina
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Eight Water Companies
1.	Prospective Yield on Aaa Rated Corporate Bonds (1)	4.61 %
2.	Adjustment to Reflect Yield Spread Between Aaa Rated Corporate Bonds and A Rated Public Utility Bonds	0.25 (2)
3.	Adjusted Prospective Yield on A Rated Public Utility Bonds	4.86 %
4.	Adjustment to Reflect Bond Rating Difference of Proxy Group	0.06 (3)
5.	Adjusted Prospective Bond Yield	4.92 %
6.	Equity Risk Premium (4)	5.01
7.	Risk Premium Derived Common Equity Cost Rate	9.93 %

Notes:
(1) Consensus forecast of Moody's Aaa Rated Corporate bonds from Blue Chip Financial Forecasts (see pages 10-11 of this Schedule).
(2) The average yield spread of A rated public utility bonds over Aaa rated corporate bonds of 0.25% from page 4 of this Schedule.
(3) Adjustment to reflect the A2 / A3 Moody's LT issuer rating of the proxy group of eight water companies as shown on page 5 of this Schedule. The 0.06% upward adjustment is derived by taking 1/6 of the spread between A2 and A3 Public Utility Bonds (1/6 * 0.37% = 0.06%) as derived from page 4 of this Schedule.
(4) From page 7 of this Schedule.

Carolina Water Service, Inc. of South Carolina
Interest Rates and Bond Spreads for
Moody's Corporate and Public Utility Bonds

Selected Bond Yields

	[1] Aaa Rated Corporate Bond	[2] A Rated Public Utility Bond	[3] Baa Rated Public Utility Bond
Sep-2017	3.63 %	3.86 %	4.23 %
Aug-2017	3.63	3.86	4.23
Jul-2017	3.70	3.99	4.36
Average	3.65 %	3.90 %	4.27 %

Selected Bond Spreads

A Rated Public Utility Bonds Over Aaa Rated Corporate Bonds: 0.25 % (1)

Baa Rated Public Utility Bonds Over A Rated Public Utility Bonds: 0.37 % (2)

Notes:
(1) Column [2] - Column [1].
(2) Column [3] - Column [2].

Source of Information:
Bloomberg Professional Service

Carolina Water Service, Inc. of South Carolina
Comparison of Long-Term Issuer Ratings for
Proxy Group of Eight Water Companies

	Moody's Long-Term Issuer Rating October 2017		Standard & Poor's Long-Term Issuer Rating October 2017	
Proxy Group of Eight Water Companies	Long-Term Issuer Rating	Numerical Weighting(1)	Long-Term Issuer Rating	Numerical Weighting(1)
American States Water Co. (2)	A2	6.0	A+	5.0
American Water Works Company Inc (3)	A3	7.0	A	6.0
Aqua America Inc (4)	NR	--	A+	5.0
California Water Service Group (5)	NR	--	A+	5.0
Connecticut Water Service Inc (6)	NR	--	A	6.0
Middlesex Water Co.	NR	--	A	6.0
SJW Corp (7)	NR	--	A	6.0
York Water Co.	NR	--	A-	7.0
Average	A2/A3	6.5	A	5.8

Notes:

(1) From page 6 of this Schedule.
(2) Ratings that of Golden State Water Company.
(3) Ratings that of New Jersey and Pennsylvania American Water Companies.
(4) Ratings that of Aqua Pennsylvania, Inc.
(5) Ratings that of California Water Service Company.
(6) Ratings that of Connecticut Water Company.
(7) Ratings that of San Jose Water Company.

Source Information: Moody's Investors Service
Standard & Poor's Global Utilities Rating Service

Numerical Assignment for
Moody's and Standard & Poor's Bond Ratings

Moody's Bond Rating	Numerical Bond Weighting	Standard & Poor's Bond Rating
Aaa	1	AAA
Aa1	2	AA+
Aa2	3	AA
Aa3	4	AA-
A1	5	A+
A2	6	A
A3	7	A-
Baa1	8	BBB+
Baa2	9	BBB
Baa3	10	BBB-
Ba1	11	BB+
Ba2	12	BB
Ba3	13	BB-
B1	14	B+
B2	15	B
B3	16	B-

Carolina Water Service, Inc. of South Carolina
Judgment of Equity Risk Premium for
Proxy Group of Eight Water Companies

Line No.		Proxy Group of Eight Water Companies
1.	Calculated equity risk premium based on the total market using the beta approach (1)	5.87 %
2.	Mean equity risk premium based on a study using the holding period returns of public utilities with A rated bonds (2)	4.15
3.	Average equity risk premium	5.01 %

Notes: (1) From page 8 of this Schedule.
(2) From page 12 of this Schedule.

Carolina Water Service, Inc. of South Carolina
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Eight Water Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Eight Water Companies
	Ibbotson-Based Equity Risk Premiums:	
1.	Ibbotson Equity Risk Premium (1)	5.56 %
2.	Regression on Ibbotson Risk Premium Data (2)	7.37
3.	Ibbotson Equity Risk Premium based on PRPM (3)	5.91
4.	Average Ibbotson Equity Risk Premium	6.28
	Value Line-Based Equity Risk Premiums:	
5.	Equity Risk Premium Based on Value Line Summary and Index (4)	4.84
6.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	9.69
7.	Average Value Line Equity Risk Premium	7.26
	Bloomberg-Based Equity Risk Premium:	
8.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	9.31
9.	Conclusion of Equity Risk Premium (7)	7.62 %
10.	Adjusted Beta (8)	0.77
11.	Forecasted Equity Risk Premium	5.87 %

Notes provided on page 9 of this Schedule.

Carolina Water Service, Inc. of South Carolina
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for the
Proxy Group of Eight Water Companies

Notes:

(1) Based on the arithmetic mean historical monthly returns on large company common stocks from Ibbotson® SBBI® 2017 Market Report minus the arithmetic mean monthly yield of Moody's average Aaa and Aa corporate bonds from 1926-2016.

(2) This equity risk premium is based on a regression of the monthly equity risk premiums of large company common stocks relative to Moody's average Aaa and Aa rated corporate bond yields from 1928-2016 referenced in Note 1 above.

(3) The Predictive Risk Premium Model (PRPM) is discussed in the accompanying direct testimony. The Ibbotson equity risk premium based on the PRPM is derived by applying the PRPM to the monthly risk premiums between Ibbotson large company common stock monthly returns and average Aaa and Aa corporate monthly bond yields, from January 1928 through September 2017.

(4) The equity risk premium based on the Value Line Summary and Index is derived by subtracting the average consensus forecast of Aaa corporate bonds of 4.61% (from page 3 of this Schedule) from the projected 3-5 year total annual market return of 9.45% (described fully in note 1 on page 2 of Schedule DWD-5).

(5) Using data from Value Line for the S&P 500, an expected total return of 14.30% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 4.61% results in an expected equity risk premium of 9.69%.

(6) Using data from the Bloomberg Professional Service for the S&P 500, an expected total return of 13.92% was derived based upon expected dividend yields and long-term earnings growth estimates as a proxy for capital appreciation. Subtracting the average consensus forecast of Aaa corporate bonds of 4.61% results in an expected equity risk premium of 9.31%.

(7) Average of lines 4, 7, and 8.

(8) Average of mean and median beta from Schedule DWD-5.

Sources of Information:

Stocks, Bonds, Bills, and Inflation - 2017 SBBI Yearbook, John Wiley & Sons, Inc.
Industrial Manual and Mergent Bond Record Monthly Update.
Value Line Summary and Index
Blue Chip Financial Forecasts, October 1, 2017 and June 1, 2017
Bloomberg Professional Service

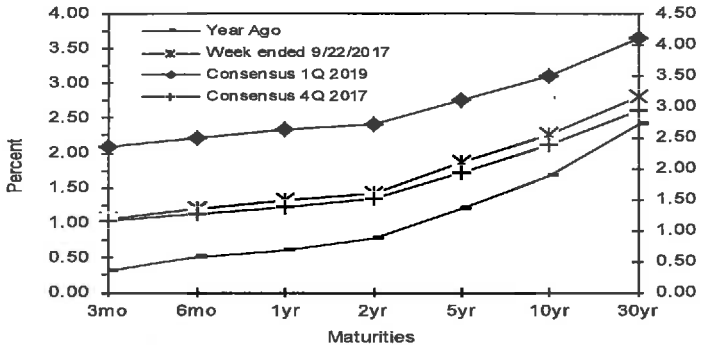
Consensus Forecasts Of U.S. Interest Rates And Key Assumptions[1]

	History				History				Consensus Forecasts-Quarterly Avg.					
	Average For Week Ending				Average For Month			Latest Qtr	4Q	1Q	2Q	3Q	4Q	1Q
Interest Rates	Sep. 22	Sep. 15	Sep. 8	Sep. 1	Aug	Jul	Jun	3Q 2017*	2017	2018	2018	2018	2018	2019
Federal Funds Rate	1.16	1.16	1.15	1.16	1.16	1.15	1.03	1.16	1.2	1.4	1.6	1.8	2.0	2.2
Prime Rate	4.25	4.25	4.25	4.25	4.25	4.25	4.13	4.25	4.3	4.5	4.7	4.9	5.1	5.2
LIBOR, 3-mo.	1.33	1.32	1.32	1.32	1.31	1.31	1.26	1.32	1.4	1.6	1.8	2.0	2.2	2.4
Commercial Paper, 1-mo.	1.11	1.11	1.10	1.11	1.10	1.10	1.00	1.11	1.2	1.4	1.6	1.8	2.0	2.2
Treasury bill, 3-mo.	1.04	1.04	1.05	1.04	1.04	1.09	1.00	1.04	1.2	1.4	1.5	1.7	1.9	2.1
Treasury bill, 6-mo.	1.19	1.16	1.15	1.11	1.13	1.13	1.11	1.17	1.3	1.5	1.7	1.9	2.1	2.2
Treasury bill, 1 yr.	1.31	1.27	1.23	1.23	1.23	1.23	1.20	1.27	1.4	1.6	1.8	2.0	2.2	2.3
Treasury note, 2 yr.	1.43	1.35	1.29	1.33	1.34	1.38	1.33	1.36	1.5	1.7	1.9	2.1	2.3	2.4
Treasury note, 5 yr.	1.87	1.77	1.65	1.72	1.79	1.88	1.77	1.76	1.9	2.1	2.3	2.5	2.6	2.8
Treasury note, 10 yr.	2.26	2.18	2.07	2.14	2.23	2.32	2.19	2.17	2.4	2.5	2.7	2.8	3.0	3.1
Treasury note, 30 yr.	2.81	2.77	2.69	2.75	2.81	2.89	2.81	2.76	2.9	3.1	3.3	3.4	3.5	3.6
Corporate Aaa bond	3.77	3.76	3.70	3.72	3.76	3.81	3.81	3.74	3.9	4.1	4.3	4.4	4.6	4.7
Corporate Baa bond	4.33	4.34	4.3	4.31	4.34	4.39	4.39	4.32	4.5	4.8	5.0	5.1	5.3	5.5
State & Local bonds	3.32	3.31	3.29	3.30	3.35	3.43	3.37	3.31	3.6	3.8	4.0	4.1	4.2	4.3
Home mortgage rate	3.83	3.78	3.78	3.82	3.88	3.97	3.90	3.80	4.0	4.2	4.4	4.5	4.7	4.8
	History				History				Consensus Forecasts-Quarterly					
	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q
Key Assumptions	2015	2016	2016	2016	2016	2017	2017	2017*	2017	2018	2018	2018	2018	2019
Major Currency Index	93.1	93.3	89.6	90.3	93.7	94.4	93.0	88.3	88.4	88.9	89.1	89.1	89.2	88.6
Real GDP	0.5	0.6	2.2	2.8	1.8	1.2	3.1	2.2	2.6	2.3	2.4	2.3	2.2	2.1
GDP Price Index	0.8	0.3	2.4	1.4	2.0	2.0	1.0	1.7	2.0	1.9	1.9	2.1	2.1	2.2
Consumer Price Index	0.4	0.1	2.3	1.8	3.0	3.1	-0.3	1.9	2.4	2.0	2.0	2.2	2.3	2.3

Forecasts for interest rates and the Federal Reserve's Major Currency Index represent averages for the quarter. Forecasts for Real GDP, GDP Price Index and Consumer Price Index are seasonally-adjusted annual rates of change (saar). Individual panel members' forecasts are on pages 4 through 9. Historical data: Treasury rates from the Federal Reserve Board's H.15; AAA-AA and A-BBB corporate bond yields from Bank of America-Merrill Lynch and are 15+ years, yield to maturity; State and local bond yields from Bank of America-Merrill Lynch, A-rated, yield to maturity; Mortgage rates from Freddie Mac, 30-year, fixed; LIBOR quotes from Intercontinental Exchange. All interest rate data is sourced from Haver Analytics. Historical data for Fed's Major Currency Index is from FRSR H.10. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS). **Intercst rate data for 3Q 2017 based on historical data through the week ended September 22nd. *Data for 3Q 2017 Major Currency Index is based on data through week ended September 22nd. Figures for 3Q 2017 Real GDP, GDP Chained Price Index and Consumer Price Index are consensus forecasts based on a special question asked of the panelists' this month.*

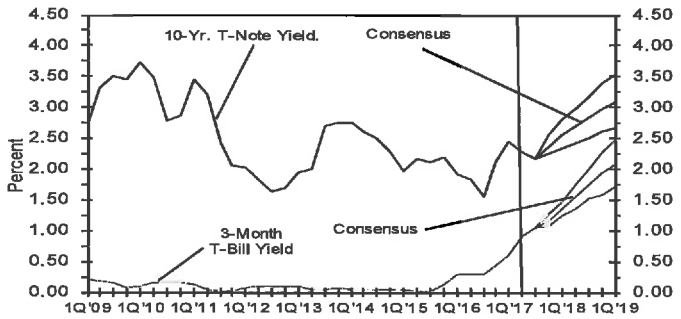
U.S. Treasury Yield Curve

Week ended September 22, 2017 and Year Ago vs. 4Q 2017 and 1Q 2019 Consensus Forecasts



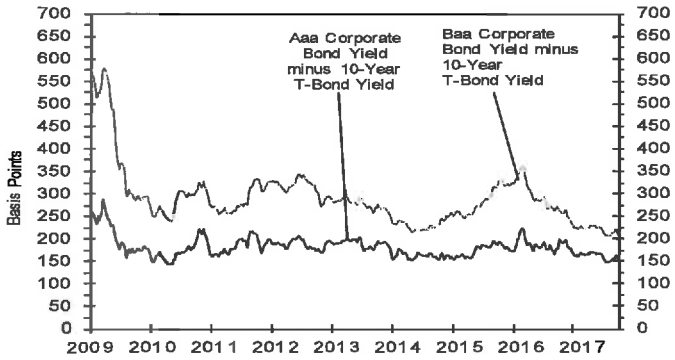
U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield

(Quarterly Average)



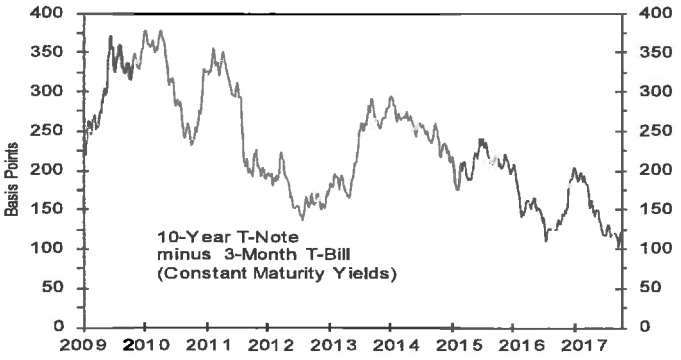
Corporate Bond Spreads

As of week ended September 22, 2017



U.S. Treasury Yield Curve

As of week September 22, 2017



Long-Range Survey:

The table below contains the results of our twice-annual long-range CONSENSUS survey. There are also Top 10 and Bottom 10 averages for each variable. Shown are consensus estimates for the years 2019 through 2023 and averages for the five-year periods 2019-2023 and 2024-2028. Apply these projections cautiously. Few if any economic, demographic and political forces can be evaluated accurately over such long time spans.

		Average For The Year					Five-Year Averages	
Interest Rates		**2019**	**2020**	**2021**	**2022**	**2023**	**2019-2023**	**2024-2028**
1. Federal Funds Rate	**CONSENSUS**	**2.6**	**2.9**	**2.9**	**2.9**	**2.9**	**2.8**	**3.0**
	Top 10 Average	3.1	3.5	3.4	3.5	3.5	3.4	3.5
	Bottom 10 Average	2.0	2.3	2.3	2.3	2.4	2.3	2.4
2. Prime Rate	**CONSENSUS**	**5.6**	**5.9**	**5.9**	**5.9**	**5.9**	**5.8**	**6.0**
	Top 10 Average	6.1	6.5	6.5	6.5	6.5	6.4	6.5
	Bottom 10 Average	5.0	5.3	5.3	5.2	5.3	5.2	5.4
3. LIBOR, 3-Mo.	**CONSENSUS**	**2.9**	**3.1**	**3.2**	**3.1**	**3.2**	**3.1**	**3.2**
	Top 10 Average	3.4	3.7	3.7	3.7	3.8	3.7	3.8
	Bottom 10 Average	2.4	2.6	2.6	2.5	2.6	2.5	2.6
4. Commercial Paper, 1-Mo.	**CONSENSUS**	**2.7**	**3.0**	**3.0**	**3.0**	**3.1**	**3.0**	**3.1**
	Top 10 Average	3.2	3.5	3.5	3.6	3.6	3.5	3.6
	Bottom 10 Average	2.2	2.5	2.5	2.4	2.5	2.4	2.6
5. Treasury Bill Yield, 3-Mo.	**CONSENSUS**	**2.5**	**2.8**	**2.8**	**2.8**	**2.9**	**2.8**	**2.9**
	Top 10 Average	3.1	3.4	3.4	3.4	3.5	3.3	3.5
	Bottom 10 Average	1.9	2.2	2.3	2.2	2.3	2.2	2.3
6. Treasury Bill Yield, 6-Mo.	**CONSENSUS**	**2.6**	**2.9**	**3.0**	**3.0**	**3.0**	**2.9**	**3.0**
	Top 10 Average	3.2	3.6	3.5	3.6	3.6	3.5	3.6
	Bottom 10 Average	2.0	2.4	2.4	2.4	2.4	2.3	2.4
7. Treasury Bill Yield, 1-Yr.	**CONSENSUS**	**2.8**	**3.1**	**3.1**	**3.1**	**3.1**	**3.0**	**3.2**
	Top 10 Average	3.4	3.7	3.7	3.7	3.7	3.6	3.7
	Bottom 10 Average	2.1	2.5	2.5	2.5	2.5	2.4	2.5
8. Treasury Note Yield, 2-Yr.	**CONSENSUS**	**2.9**	**3.2**	**3.3**	**3.3**	**3.3**	**3.2**	**3.3**
	Top 10 Average	3.5	3.9	3.9	3.9	3.9	3.8	4.0
	Bottom 10 Average	2.3	2.6	2.7	2.6	2.6	2.6	2.7
10. Treasury Note Yield, 5-Yr.	**CONSENSUS**	**3.3**	**3.5**	**3.5**	**3.6**	**3.6**	**3.5**	**3.6**
	Top 10 Average	3.9	4.2	4.2	4.2	4.2	4.1	4.3
	Bottom 10 Average	2.7	2.9	2.9	3.0	3.0	2.9	3.0
11. Treasury Note Yield, 10-Yr.	**CONSENSUS**	**3.6**	**3.8**	**3.8**	**3.9**	**3.9**	**3.8**	**3.9**
	Top 10 Average	4.2	4.5	4.4	4.5	4.5	4.4	4.6
	Bottom 10 Average	2.9	3.1	3.1	3.2	3.3	3.1	3.3
12. Treasury Bond Yield, 30-Yr.	**CONSENSUS**	**4.2**	**4.3**	**4.4**	**4.4**	**4.4**	**4.3**	**4.5**
	Top 10 Average	4.9	5.0	5.0	5.0	5.0	5.0	5.1
	Bottom 10 Average	3.5	3.7	3.7	3.8	3.8	3.7	3.8
13. Corporate Aaa Bond Yield	**CONSENSUS**	**5.2**	**5.4**	**5.4**	**5.4**	**5.5**	**5.4**	**5.5**
	Top 10 Average	5.7	5.9	5.9	6.0	5.9	5.9	6.0
	Bottom 10 Average	4.7	4.9	4.9	4.9	5.0	4.9	5.1
13. Corporate Baa Bond Yield	**CONSENSUS**	**6.1**	**6.3**	**6.3**	**6.3**	**6.3**	**6.3**	**6.4**
	Top 10 Average	6.8	7.0	6.9	7.0	6.9	6.9	7.0
	Bottom 10 Average	5.5	5.6	5.7	5.6	5.8	5.6	5.7
14. State & Local Bonds Yield	**CONSENSUS**	**4.6**	**4.7**	**4.7**	**4.7**	**4.7**	**4.7**	**4.8**
	Top 10 Average	5.1	5.3	5.2	5.3	5.3	5.2	5.3
	Bottom 10 Average	4.2	4.2	4.2	4.1	4.1	4.2	4.2
15. Home Mortgage Rate	**CONSENSUS**	**5.3**	**5.5**	**5.5**	**5.5**	**5.5**	**5.4**	**5.6**
	Top 10 Average	5.9	6.2	6.1	6.2	6.1	6.1	6.2
	Bottom 10 Average	4.6	4.8	4.8	4.7	4.9	4.8	4.9
A. FRB - Major Currency Index	**CONSENSUS**	**93.8**	**93.2**	**93.1**	**93.0**	**92.7**	**93.2**	**92.5**
	Top 10 Average	96.5	96.6	96.9	97.1	97.2	96.9	97.1
	Bottom 10 Average	91.0	89.7	89.2	88.7	88.1	89.3	88.1
		Year-Over-Year, % Change					Five-Year Averages	
		2019	**2020**	**2021**	**2022**	**2023**	**2019-2023**	**2024-2028**
B. Real GDP	**CONSENSUS**	**2.2**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.1**
	Top 10 Average	2.6	2.4	2.4	2.4	2.3	2.4	2.3
	Bottom 10 Average	1.7	1.6	1.6	1.6	1.6	1.6	1.8
C. GDP Chained Price Index	**CONSENSUS**	**2.2**	**2.1**	**2.1**	**2.0**	**2.0**	**2.1**	**2.0**
	Top 10 Average	2.5	2.3	2.3	2.2	2.2	2.3	2.3
	Bottom 10 Average	1.9	1.9	1.9	1.9	1.7	1.8	1.9
D. Consumer Price Index	**CONSENSUS**	**2.3**	**2.3**	**2.3**	**2.3**	**2.2**	**2.2**	**2.2**
	Top 10 Average	2.6	2.6	2.5	2.5	2.4	2.5	2.4
	Bottom 10 Average	1.9	2.0	2.0	2.1	1.8	2.0	2.0

Carolina Water Service, Inc. of South Carolina
Derivation of Mean Equity Risk Premium Based Studies
Using Holding Period Returns and
Projected Market Appreciation of the S&P Utility Index

Line No.		Implied Equity Risk Premium
	Equity Risk Premium based on S&P Utility Index Holding Period Returns (1):	
1.	Historical Equity Risk Premium	3.96 %
2.	Regression of Historical Equity Risk Premium (2)	5.59
3.	Forecasted Equity Risk Premium Based on PRPM (3)	3.96
4.	Average Equity Risk Premium Using S&P Holding Period Returns	4.50 %
	Equity Risk Premium based on Projected Market Appreciation of the S&P Utility Index	
5.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Value Line Data) (4)	4.20
6.	Forecasted Equity Risk Premium based on Projected Total Return on the S&P Utilities Index (Bloomberg Data) (5)	3.74
7.	Average Equity Risk Premium (6)	4.15 %

Notes:
(1) Based on S&P Public Utility Index monthly total returns and Moody's Public Utility Bond average monthly yields from 1928-2016. Holding period returns are calculated based upon income received (dividends and interest) plus the relative change in the market value of a security over a one-year holding period.

(2) This equity risk premium is based on a regression of the monthly equity risk premiums of the S&P Utility Index relative to Moody's A rated public utility bond yields from 1928 - 2016 referenced in note 1 above.

(3) The Predictive Risk Premium Model (PRPM) is applied to the risk premium of the monthly total returns of the S&P Utility Index and the monthly yields on Moody's A rated public utility bonds from January 1928 - September 2017.

(4) Using data from Value Line for the S&P Utilities Index, an expected return of 9.06% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A rated public utility bond yield of 4.86%, calculated on line 3 of page 3 of this Schedule results in an equity risk premium of 4.20%. (9.06% - 4.86% = 4.20%)

(5) Using data from Bloomberg Professional Service for the S&P Utilities Index, an expected return of 8.60% was derived based on expected dividend yields and long-term growth estimates as a proxy for market appreciation. Subtracting the expected A rated public utility bond yield of 4.86%, calculated on line 3 of page 3 of this Schedule results in an equity risk premium of 3.74%. (8.60% - 4.86% = 3.74%)

(6) Average of lines 4 through 6.

Carolina Water Service, Inc. of South Carolina
Indicated Common Equity Cost Rate Through Use
of the Traditional Capital Asset Pricing Model (CAPM) and Empirical Capital Asset Pricing Model (ECAPM)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Eight Water Companies	Value Line Adjusted Beta	Bloomberg Adjusted Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
American States Water Co.	0.80	0.74	0.77	8.67 %	3.58 %	10.25 %	10.75 %	10.50 %
American Water Works Company Inc	0.65	0.57	0.61	8.67	3.58	8.87	9.71	9.29
Aqua America Inc	0.70	0.61	0.66	8.67	3.58	9.30	10.04	9.67
California Water Service Group	0.80	0.78	0.79	8.67	3.58	10.43	10.88	10.65
Connecticut Water Service Inc	0.65	0.69	0.67	8.67	3.58	9.39	10.10	9.74
Middlesex Water Co.	0.80	0.97	0.89	8.67	3.58	11.29	11.53	11.41
SJW Corp	0.75	0.84	0.80	8.67	3.58	10.51	10.95	10.73
York Water Co.	0.80	0.98	0.89	8.67	3.58	11.29	11.53	11.41
Mean			0.76			10.17 %	10.69 %	10.43 %
Median			0.78			10.34 %	10.82 %	10.58 %
Average of Mean and Median			0.77			10.26	10.76	10.51 %

Notes on page 2 of this Schedule.

Exhibit No. __
Schedule DWD-5
Page 1 of 2

Carolina Water Service, Inc. of South Carolina
Notes to Accompany the Application of the CAPM and ECAPM

Notes:

(1) The market risk premium (MRP) is derived by using six different measures from three sources: Ibbotson, Value Line, and Bloomberg as illustrated below:

Historical Data MRP Estimates:

Measure 1: Ibbotson Arithmetic Mean MRP (1926-2016)

Arithmetic Mean Monthly Returns for Large Stocks 1926-2016:	11.97 %
Arithmetic Mean Income Returns on Long-Term Government Bonds:	5.17
MRP based on Ibbotson Historical Data:	6.80 %

Measure 2: Application of a Regression Analysis to Ibbotson Historical Data (1926-2016) 8.60 %

Measure 3: Application of the PRPM to Ibbotson Historical Data: (January 1926 - September 2017) 6.69 %

Average Historical Data MRP 7.36 %

Value Line MRP Estimates:

Measure 4: Value Line Projected MRP (Thirteen weeks ending October 13, 2017)

Total projected return on the market 3-5 years hence*:	9.45 %
Projected Risk-Free Rate (see note 2):	3.58
MRP based on Value Line Summary & Index:	5.87 %

*Forcasted 3-5 year capital appreciation plus expected dividend yield

Measure 5: Value Line Projected Return on the Market based on the S&P 500

Total return on the Market based on the S&P 500:	14.30 %
Projected Risk-Free Rate (see note 2):	3.58
MRP based on Value Line data	10.72 %

Average Value Line MRP: 8.29 %

Measure 6: Bloomberg Projected MRP

Total return on the Market based on the S&P 500:	13.92 %
Projected Risk-Free Rate (see note 2):	3.58
MRP based on Bloomberg data	10.34 %

Average of Value Line, Ibbotson, and Bloomberg MRP: 8.67 %

(2) For reasons explained in the direct testimony, the appropriate risk-free rate for cost of capital purposes is the average forecast of 30 year Treasury Bonds per the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts. (See pages 10-11 of Schedule DWD-4.) The projection of the risk-free rate is illustrated below:

Fourth Quarter 2017	2.90 %
First Quarter 2018	3.10
Second Quarter 2018	3.30
Third Quarter 2018	3.40
Fourth Quarter 2018	3.50
First Quarter 2019	3.60
2019-2023	4.30
2024-2028	4.50
	3.58 %

(3) Average of Column 6 and Column 7.

Sources of Information:
Value Line Summary and Index
Blue Chip Financial Forecasts, October 1, 2017 and June 1, 2017
Stocks, Bonds, Bills, and Inflation - 2017 SBBI Yearbook, John Wiley & Sons, Inc.
Bloomberg Professional Services

Carolina Water Service, Inc. of South Carolina
Basis of Selection of the Group of Non-Price Regulated Companies
Comparable in Total Risk to the Utility Proxy Group

The criteria for selection of the proxy group of twenty-eight non-price regulated companies was that the non-price regulated companies be domestic and reported in Value Line Investment Survey (Standard Edition).

The proxy group of twenty-eight non-price regulated companies were then selected based on the unadjusted beta range of 0.37 – 0.77 and residual standard error of the regression range of 2.4240 – 2.8912 of the water proxy group.

These ranges are based upon plus or minus two standard deviations of the unadjusted beta and standard error of the regression. Plus or minus two standard deviations captures 95.50% of the distribution of unadjusted betas and residual standard errors of the regression.

The standard deviation of the water industry's residual standard error of the regression is 0.0860. The standard deviation of the standard error of the regression is calculated as follows:

$$\text{Standard Deviation of the Std. Err. of the Regr.} = \frac{\text{Standard Error of the Regression}}{\sqrt{2N}}$$

where: N = number of observations. Since Value Line betas are derived from weekly price change observations over a period of five years, N = 259

$$\text{Thus, } 0.1168 = \frac{2.6576}{\sqrt{518}} = \frac{2.6576}{22.7596}$$

Source of Information: Value Line, Inc., September 2017
Value Line Investment Survey (Standard Edition)

Carolina Water Service, Inc. of South Carolina
Basis of Selection of Comparable Risk
Domestic Non-Price Regulated Companies

Proxy Group of Eight Water Companies	[1] Value Line Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
American States Water Co.	0.80	0.62	2.7883	0.1032
American Water Works Company Inc	0.65	0.41	1.9968	0.0739
Aqua America Inc	0.70	0.54	2.1879	0.0810
California Water Service Group	0.80	0.63	2.6120	0.0967
Connecticut Water Service Inc	0.65	0.46	2.4195	0.0895
Middlesex Water Co.	0.80	0.64	2.9923	0.1107
SJW Corp	0.75	0.56	3.0548	0.1131
York Water Co.	0.80	0.68	3.2092	0.1188
Average	0.74	0.57	2.6576	0.0984
Beta Range (+/- 2 std. Devs. of Beta)	0.37	0.77		
2 std. Devs. of Beta	0.20			
Residual Std. Err. Range (+/- 2 std. Devs. of the Residual Std. Err.)	2.4240	2.8912		
Std. dev. of the Res. Std. Err.	0.1168			
2 std. devs. of the Res. Std. Err.	0.2336			

Source of Information: Valueline Proprietary Database, September 2017

Carolina Water Service, Inc. of South Carolina
Proxy Group of Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Eight Water Companies

Proxy Group of Twenty-Eight Non-Price Regulated Companies	[1] VL Adjusted Beta	[2] Unadjusted Beta	[3] Residual Standard Error of the Regression	[4] Standard Deviation of Beta
AmerisourceBergen	0.85	0.75	2.5531	0.0945
ARAMARK Holdings	0.85	0.77	2.4453	0.1022
AutoZone Inc.	0.80	0.64	2.4990	0.0925
Bright Horizons Fami	0.85	0.70	2.4558	0.0942
Cheesecake Factory	0.75	0.58	2.6263	0.0972
CBOE Holdings	0.70	0.50	2.5399	0.0940
Chemed Corp.	0.80	0.68	2.8556	0.1057
C.H. Robinson	0.85	0.70	2.6811	0.0992
CME Group	0.80	0.62	2.4557	0.0909
DineEquity Inc.	0.80	0.67	2.7737	0.1026
Dunkin' Brands Group	0.65	0.45	2.7843	0.1030
Darden Restaurants	0.85	0.76	2.7543	0.1019
Forrester Research	0.70	0.47	2.6503	0.0981
Hormel Foods	0.75	0.57	2.4428	0.0904
Lilly (Eli)	0.75	0.59	2.5230	0.0934
Mercury General	0.80	0.64	2.4716	0.0915
Vail Resorts	0.85	0.72	2.6041	0.0964
NVR, Inc.	0.85	0.70	2.4253	0.0898
Pinnacle Foods	0.80	0.68	2.5721	0.0998
Quintiles IMS Hldgs.	0.85	0.77	2.6073	0.1016
Regal Entertainment	0.85	0.75	2.7024	0.1000
Six Flags Entertainm	0.85	0.74	2.8322	0.1048
Spectrum Brands	0.85	0.72	2.8725	0.1063
Target Corp.	0.85	0.74	2.6959	0.0998
VeriSign Inc.	0.85	0.73	2.8219	0.1044
VWR Corp.	0.85	0.75	2.8069	0.1261
WD-40 Co.	0.85	0.70	2.4499	0.0907
West Pharmac. Svcs.	0.85	0.74	2.5450	0.0942
Average	0.81	0.67	2.6200	0.1000
Proxy Group of Eight Water Companies	0.74	0.57	2.6576	0.0984

Source of Information: Valueline Proprietary Database, September 2017

Carolina Water Service, Inc. of South Carolina
Summary of Cost of Equity Models Applied to
Proxy Group of Twenty-Eight Non-Price Regulated Companies
Comparable in Total Risk to the
Proxy Group of Eight Water Companies

Principal Methods	Proxy Group of Twenty-Eight Non-Price Regulated Companies
Discounted Cash Flow Model (DCF) (1)	13.57 %
Risk Premium Model (RPM) (2)	11.91
Capital Asset Pricing Model (CAPM) (3)	11.15
Mean	12.21 %
Median	11.91 %
Average of Mean and Median	12.06 %

Notes:
(1) From page 2 of this Schedule.
(2) From page 3 of this Schedule.
(3) From page 6 of this Schedule.

Carolina Water Service, Inc. of South Carolina
DCF Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the
Proxy Group of Eight Water Companies

Proxy Group of Twenty-Eight Non-Price Regulated Companies	[1] Average Dividend Yield	[2] Value Line Projected Five Year Growth in EPS	[3] Reuters Mean Consensus Projected Five Year Growth Rate in EPS	[4] Zack's Five Year Projected Growth Rate in EPS	[5] Yahoo! Finance Projected Five Year Growth in EPS	[6] Average Projected Five Year Growth Rate in EPS	[7] Adjusted Dividend Yield	[8] Indicated Common Equity Cost Rate (1)
AmerisourceBergen	1.77 %	11.00 %	8.24 %	9.30 %	8.24 %	9.20 %	1.85 %	11.05 %
ARAMARK Holdings	1.02	NA	13.96	12.00	13.96	13.31	1.09	14.40
AutoZone Inc.	-	11.50	10.11	11.60	10.11	10.83	-	NA
Bright Horizons Fami	-	19.50	17.17	20.00	17.17	18.46	-	NA
Cheesecake Factory	1.98	8.50	10.55	14.60	10.55	11.05	2.09	13.14
CBOE Holdings	1.06	13.00	NA	17.40	18.28	16.23	1.15	17.38
Chemed Corp.	0.57	13.50	NA	10.00	10.00	11.17	0.60	11.77
C.H. Robinson	2.55	6.00	6.30	8.80	6.31	6.85	2.64	9.49
CME Group	2.05	8.50	8.65	10.60	8.65	9.10	2.14	11.24
DineEquity Inc.	9.49	5.00	3.90	NA	3.90	4.27	9.69	13.96
Dunkin' Brands Group	2.43	10.00	10.51	13.40	10.51	11.11	2.56	13.67
Darden Restaurants	3.06	11.00	11.60	10.30	11.60	11.13	3.23	14.36
Forrester Research	1.86	10.00	12.00	12.00	12.00	11.50	1.97	13.47
Hormel Foods	2.09	10.50	1.62	9.30	1.62	5.76	2.15	7.91
Lilly (Eli)	2.52	11.00	11.40	10.30	11.41	11.03	2.66	13.69
Mercury General	4.35	14.00	26.50	26.50	26.50	23.38	4.86	28.24
Vail Resorts	1.91	20.50	17.50	NA	17.50	18.50	2.09	20.59
NVR, Inc.	-	15.00	18.70	14.90	18.70	16.83	-	NA
Pinnacle Foods	2.20	NA	10.91	9.30	10.91	10.37	2.31	12.68
Quintiles IMS Hldgs.	-	12.00	12.93	13.00	13.78	12.93	-	NA
Regal Entertainment	5.30	12.00	3.34	10.00	4.27	7.40	5.50	12.90
Six Flags Entertainm	4.53	12.00	8.00	8.00	8.00	9.00	4.73	13.73
Spectrum Brands	1.55	11.50	9.25	9.60	9.25	9.90	1.63	11.53
Target Corp.	4.33	4.50	(3.33)	4.70	(3.33)	4.60	4.43	9.03
VeriSign Inc.	-	10.50	NA	NA	8.00	9.25	-	NA
VWR Corp.	-	NA	8.99	NA	8.99	8.99	-	NA
WD-40 Co.	1.80	8.00	NA	10.00	13.00	10.33	1.89	12.22
West Pharmac. Svcs.	0.62	15.00	18.13	17.10	18.13	17.09	0.67	17.76
							Mean	13.83 %
							Median	13.31 %
							Average of Mean and Median	13.57 %

NA= Not Available
NMF= Not Meaningful Figure

(1) The application of the DCF model to the domestic, non-price regulated comparable risk companies is identical to the application of the DCF to the utility proxy group. The dividend yield is derived by using the 60 day average price and the spot indicated dividend as of October 13, 2017. The dividend yield is then adjusted by 1/2 the average projected growth rate in EPS, which is calculated by averaging the 5 year projected growth in EPS provided by Value Line, www.reuters.com, www.zacks.com, and www.yahoo.com (excluding any negative growth rates) and then adding that growth rate to the adjusted dividend yield.

Source of Information:
Value Line Investment Survey
www.reuters.com Downloaded on 10/13/2017
www.zacks.com Downloaded on 10/13/2017
www.yahoo.com Downloaded on 10/13/2017

Exhibit No. ___
Schedule DWD-7
Page 2 of 6

Carolina Water Service, Inc. of South Carolina
Indicated Common Equity Cost Rate
Through Use of a Risk Premium Model
Using an Adjusted Total Market Approach

Line No.		Proxy Group of Twenty-Eight Non-Price Regulated Companies
1.	Prospective Yield on Baa Rated Corporate Bonds (1)	5.36 %
2.	Equity Risk Premium (2)	6.55
3.	Risk Premium Derived Common Equity Cost Rate	11.91 %

Notes: (1) Average forecast of Baa corporate bonds based upon the consensus of nearly 50 economists reported in Blue Chip Financial Forecasts dated October 1, 2017 and June 1, 2017 (see pages 10 and 11 of Schedule DWD-4). The estimates are detailed below.

Fourth Quarter 2017	4.50 %
First Quarter 2018	4.80
Second Quarter 2018	5.00
Third Quarter 2018	5.10
Fourth Quarter 2018	5.30
First Quarter 2019	5.50
2019-2023	6.30
2024-2028	6.40
Average	5.36 %

(2) From page 5 of this Schedule.

Carolina Water Service, Inc. of South Carolina
Comparison of Long-Term Issuer Ratings for the
Proxy Group of Twenty-Eight Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Eight Water Companies

	Moody's Long-Term Issuer Rating October 2017		Standard & Poor's Long-Term Issuer Rating October 2017	
Proxy Group of Twenty-Eight Non-Price Regulated Companies	Long-Term Issuer Rating	Numerical Weighting (1)	Long-Term Issuer Rating	Numerical Weighting (1)
AmerisourceBergen	Baa2	9.0	A-	7.0
ARAMARK Holdings	NR	--	BB+	11.0
AutoZone Inc.	Baa1	8.0	BBB	9.0
Bright Horizons Fami	NR	--	NR	--
Cheesecake Factory	NR	--	NR	--
CBOE Holdings	Baa1	8.0	BBB+	8.0
Chemed Corp.	NR	--	NR	--
C.H. Robinson	NR	--	NR	--
CME Group	Aa3	4.0	AA-	4.0
DineEquity Inc.	NR	--	NR	--
Dunkin' Brands Group	NR	--	NR	--
Darden Restaurants	Baa3	10.0	BBB	9.0
Forrester Research	NR	--	NR	--
Hormel Foods	A1	5.0	A	6.0
Lilly (Eli)	A2	6.0	AA-	4.0
Mercury General	Baa2	9.0	NR	--
Vail Resorts	NR	--	NR	--
NVR, Inc.	Baa2	9.0	BBB+	8.0
Pinnacle Foods	NR	--	BB-	13.0
Quintiles IMS Hldgs.	NR	--	BBB-	10.0
Regal Entertainment	B3	16.0	BB-	13.0
Six Flags Entertainm	B2	15.0	BB	12.0
Spectrum Brands	NR	--	NR	--
Target Corp.	A2	6.0	A	6.0
VeriSign Inc.	Ba1	11.0	BB+	11.0
VWR Corp.	NR	--	BB-	13.0
WD-40 Co.	NR	--	NR	--
West Pharmac. Svcs.	NR	--	NR	--
Average	Baa2	8.9	BBB	9.0

Notes:
(1) From page 6 of Schedule DWD-4.

Source of Information:
Bloomberg Professional Services

Carolina Water Service, Inc. of South Carolina
Derivation of Equity Risk Premium Based on the Total Market Approach
Using the Beta for
Proxy Group of Twenty-Eight Non-Price Regulated Companies of Comparable risk to the
Proxy Group of Eight Water Companies

Line No.	Equity Risk Premium Measure	Proxy Group of Twenty-Eight Non-Price Regulated Companies
	Ibbotson-Based Equity Risk Premiums:	
1.	Ibbotson Equity Risk Premium (1)	5.56 %
2.	Regression on Ibbotson Risk Premium Data (2)	7.37
3.	Ibbotson Equity Risk Premium based on PRPM (3)	5.91
4.	Average Ibbotson Equity Risk Premium	6.28
	Value Line-Based Equity Risk Premiums:	
5.	Equity Risk Premium Based on Value Line Summary and Index (4)	4.84
6.	Equity Risk Premium Based on Value Line S&P 500 Companies (5)	9.69
7.	Average Value Line Equity Risk Premium	7.26
	Bloomberg-Based Equity Risk Premium:	
8.	Equity Risk Premium Based on Bloomberg S&P 500 Companies (6)	9.31
9.	Conclusion of Equity Risk Premium (7)	7.62 %
10.	Adjusted Beta (8)	0.86
11.	Forecasted Equity Risk Premium	6.55 %

Notes:
(1) From note 1 of page 9 of Schedule DWD-4.
(2) From note 2 of page 9 of Schedule DWD-4.
(3) From note 3 of page 9 of Schedule DWD-4.
(4) From note 4 of page 9 of Schedule DWD-4.
(5) From note 5 of page 9 of Schedule DWD-4.
(6) From note 6 of page 9 of Schedule DWD-4.
(7) Average of lines 4, 7, and 8.
(8) Average of mean and median beta from page 6 of this Schedule.

Sources of Information:
Stocks, Bonds, Bills, and Inflation - 2017 SBBI Yearbook, John Wiley & Sons, Inc.
Value Line Summary and Index
Blue Chip Financial Forecasts, October 1, 2017 and June 1, 2017
Bloomberg Professional Services

Carolina Water Service, Inc. of South Carolina

Traditional CAPM and ECAPM Results for the Proxy Group of Non-Price-Regulated Companies Comparable in Total Risk to the Proxy Group of Eight Water Companies

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Proxy Group of Twenty-Eight Non-Price Regulated Companies	Value Line Adjusted Beta	Bloomberg Beta	Average Beta	Market Risk Premium (1)	Risk-Free Rate (2)	Traditional CAPM Cost Rate	ECAPM Cost Rate	Indicated Common Equity Cost Rate (3)
AmerisourceBergen	0.85	0.96	0.91	8.67 %	3.58 %	11.47 %	11.66 %	11.56 %
ARAMARK Holdings	0.85	0.87	0.86	8.67	3.58	11.03	11.34	11.18
AutoZone Inc.	0.75	0.85	0.80	8.67	3.58	10.51	10.95	10.73
Bright Horizons Fami	0.85	1.09	0.97	8.67	3.58	11.99	12.05	12.02
Cheesecake Factory	0.75	0.91	0.83	8.67	3.58	10.77	11.14	10.96
CBOE Holdings	0.70	0.82	0.76	8.67	3.58	10.17	10.69	10.43
Chemed Corp.	0.80	1.07	0.94	8.67	3.58	11.73	11.86	11.79
C.H. Robinson	0.85	0.66	0.75	8.67	3.58	10.08	10.62	10.35
CME Group	0.80	0.94	0.87	8.67	3.58	11.12	11.40	11.26
DineEquity Inc.	0.80	0.79	0.80	8.67	3.58	10.51	10.95	10.73
Dunkin' Brands Group	0.65	0.88	0.77	8.67	3.58	10.25	10.75	10.50
Darden Restaurants	0.85	0.84	0.85	8.67	3.58	10.95	11.27	11.11
Forrester Research	0.70	1.11	0.91	8.67	3.58	11.47	11.66	11.56
Hormel Foods	0.75	0.55	0.65	8.67	3.58	9.21	9.97	9.59
Lilly (Eli)	0.75	0.81	0.78	8.67	3.58	10.34	10.82	10.58
Mercury General	0.80	0.92	0.86	8.67	3.58	11.03	11.34	11.18
Vail Resorts	0.85	0.90	0.88	8.67	3.58	11.21	11.47	11.34
NVR, Inc.	0.85	0.89	0.87	8.67	3.58	11.12	11.40	11.26
Pinnacle Foods	0.80	0.75	0.77	8.67	3.58	10.25	10.75	10.50
Quintiles IMS Hldgs.	0.85	0.91	0.88	8.67	3.58	11.21	11.47	11.34
Regal Entertainment	0.85	0.88	0.86	8.67	3.58	11.03	11.34	11.18
Six Flags Entertainm	0.85	0.86	0.85	8.67	3.58	10.95	11.27	11.11
Spectrum Brands	0.85	0.76	0.80	8.67	3.58	10.51	10.95	10.73
Target Corp.	0.80	0.92	0.86	8.67	3.58	11.03	11.34	11.18
VeriSign Inc.	0.85	1.12	0.99	8.67	3.58	12.16	12.18	12.17
VWR Corp.	0.85	1.02	0.94	8.67	3.58	11.73	11.86	11.79
WD-40 Co.	0.85	0.81	0.83	8.67	3.58	10.77	11.14	10.96
West Pharmac. Svcs.	0.85	1.05	0.95	8.67	3.58	11.81	11.92	11.87
Mean			0.85			10.94 %	11.27 %	11.11 %
Median			0.86			11.03 %	11.34 %	11.19 %
Average of Mean and Median			0.86			10.99 %	11.31 %	11.15 %

Notes:

(1) From Schedule DWD-5, note 1.

(2) From Schedule DWD-5, note 2.

(3) Average of CAPM and ECAPM cost rates.

Exhibit No. ___
Schedule DWD-7
Page 6 of 6

Carolina Water Service, Inc. of South Carolina
Derivation of Investment Risk Adjustment Based upon
Ibbotson Associates' Size Premia for the Decile Portfolios of the NYSE/AMEX/NASDAQ

Line No.		[1] Market Capitalization on October 13, 2017 (1) (millions)	(times larger)	[2] Applicable Decile of the NYSE/AMEX/ NASDAQ (2)	[3] Applicable Size Premium (3)	[4] Spread from Applicable Size Premium (4)
1.	Carolina Water Service, Inc. of South Carolina	$ 57.209		10	5.59%	
2.	Proxy Group of Eight Water Companies	$ 3,543.646	61.9 x	5	1.51%	4.08%

	[A] Decile	[B] Number of Companies	[C] Recent Total Market Capitalization (millions)	[D] Recent Average Market Capitalization (millions)	[E] Size Premium (Return in Excess of CAPM)
Largest	1	191	$15,290,475.30	$80,054.84	-0.35%
	2	200	$3,010,671.02	$15,053.36	0.61%
	3	202	$1,609,575.62	$7,968.20	0.89%
	4	221	$1,010,851.81	$4,573.99	0.98%
	5	227	$677,120.07	$2,982.91	1.51%
	6	259	$541,038.00	$2,088.95	1.66%
	7	283	$384,129.20	$1,357.35	1.72%
	8	361	$297,164.94	$823.17	2.08%
	9	487	$212,609.64	$436.57	2.68%
Smallest	10	790	$92,882.17	$117.57	5.59%

*From 2017 Stocks, Bonds, Bills, and Inflation (SBBI) Yearbook

Notes:

(1) From page 2 of this Schedule.
(2) Gleaned from Column (D) on the bottom of this page. The appropriate decile (Column (A)) corresponds to the market capitalization of the proxy group, which is found in Column 1.
(3) Corresponding risk premium to the decile is provided on Column (E) on the bottom of this page.
(4) Line No. 1 Column 3 – Line No. 2 Column 3. For example, the 4.08% in Column 4, Line No. 2 is derived as follows 4.08% = 5.59% - 1.51%.

Exhibit No. ___
Schedule DWD-8
Page 1 of 3

Carolina Water Service, Inc. of South Carolina
Market Capitalization of Carolina Water Service, Inc. of South Carolina and
Proxy Group of Eight Water Companies

Company	Exchange	[1] Common Stock Shares Outstanding at Fiscal Year End 2016 (millions)	[2] Book Value per Share at Fiscal Year End 2016 (1)	[3] Total Common Equity at Fiscal Year End 2016 (millions)	[4] Closing Stock Market Price on October 13, 2017	[5] Market-to-Book Ratio on October 13, 2017 (2)	[6] Market Capitalization on October 13, 2017 (3) (millions)
Carolina Water Service, Inc. of South Carolina		NA	NA	$ 17.352 (4)	NA		
Based upon Proxy Group of Eight Water Companies						329.7 (5)	$ 57.209 (6)
Proxy Group of Eight Water Companies							
American States Water Co.	NYSE	36.571	$ 13.516	$ 494.297	$ 52.810	390.7 %	$ 1,931.334
American Water Works Company Inc	NYSE	178.097	29.299	5,218.000	85.020	290.2	15,141.780
Aqua America Inc	NYSE	177.394	10.429	1,850.068	34.810	333.8	6,175.098
California Water Service Group	NYSE	47.965	13.749	659.471	41.350	300.7	1,983.349
Connecticut Water Service Inc	NASDAQ	11.248	20.983	236.028	62.170	296.3	699.317
Middlesex Water Co.	NASDAQ	16.296	13.404	218.437	43.610	325.4	710.669
SJW Corp	NYSE	20.456	20.612	421.646	60.890	295.4	1,245.580
York Water Co.	NASDAQ	12.852	8.875	114.061	35.950	405.1	462.040
Average		62.610	$ 16.358	$ 1,151.501	$ 52.076	329.7 %	$ 3,543.646

NA= Not Available

Notes: (1) Column 3 / Column 1.
(2) Column 4 / Column 2.
(3) Column 1 * Column 4.
(4) Carolina Water Services, Inc. of South Carolina's 2016 book equity from its annual report to the Commission multiplied by the requested common equity ratio.
(5) The market-to-book ratio of Carolina Water Service, Inc. of South Carolina on October 13, 2017 is assumed to be equal to the market-to-book ratio of Proxy Group of Eight Water Companies on October 13, 2017.
(6) Carolina Water Service, Inc. of South Carolina's common stock, if traded, would trade at a market-to-book ratio equal to the average market-to-book ratio at October 13, 2017 of the Proxy Group of Eight Water Companies, 329.7%, and Carolina Water Service, Inc. of South Carolina's market capitalization on October 13, 2017 would therefore have been $57.21 million.

Source of Information: 2016 Annual Forms 10K
Bloomberg Financial Services

Exhibit No. ___
Schedule DWD-8
Page 2 of 3

Carolina Water Service, Inc. of South Carolina
Portfolio Ranks by Size and Risk Premiums over CAPM Results
as Compiled by Duff and Phelps 2017 Guide to Cost of Capital

	B-1		B-2		B-4		B-5		B-7		B-8	
Portfolio Rank by Size	Average Mkt. Value (in $millions)	Smoothed Premium over CAPM	Average Book Val. (in $millions)	Smoothed Premium over CAPM	MVIC (in $millions)	Smoothed Premium over CAPM	Total Assets (in $millions)	Smoothed Premium over CAPM	Sales (in $millions)	Smoothed Premium over CAPM	Average Number of Employees	Smoothed Premium over CAPM
1	$ 238,299	-1.78%	$ 67,532	0.98%	$ 277,921	-1.02%	$ 161,117	52.00%	$ 123,791	0.88%	341,434	0.43%
2	60,613	-0.16%	21,719	1.68%	77,365	0.28%	51,936	1.39%	38,382	1.75%	107,466	1.40%
3	35,630	0.47%	14,074	1.95%	46,877	0.79%	35,110	1.69%	22,044	2.17%	64,944	1.82%
4	23,756	0.95%	9,200	2.22%	32,471	1.16%	25,351	1.95%	17,114	2.35%	46,747	2.09%
5	17,471	1.32%	6,875	2.40%	24,248	1.45%	18,141	2.20%	13,286	2.54%	34,256	2.35%
6	13,871	1.59%	5,488	2.54%	18,506	1.73%	14,376	2.38%	10,376	2.73%	26,595	2.57%
7	11,594	1.80%	4,590	2.65%	15,426	1.91%	11,035	2.59%	8,400	2.88%	22,447	2.71%
8	9,463	2.04%	3,716	2.78%	13,457	2.05%	9,004	2.74%	6,977	3.02%	18,590	2.86%
9	7,822	2.27%	3,112	2.89%	10,762	2.28%	7,861	2.85%	5,938	3.14%	15,489	3.02%
10	6,482	2.49%	2,586	3.01%	8,658	2.50%	6,771	2.96%	5,106	3.25%	13,344	3.14%
11	5,637	2.66%	2,266	3.09%	7,453	2.65%	5,710	3.09%	4,435	3.36%	11,841	3.24%
12	4,791	2.85%	2,012	3.16%	6,455	2.79%	4,998	3.19%	3,740	3.48%	10,389	3.35%
13	3,915	3.09%	1,751	3.25%	5,466	2.96%	4,290	3.31%	3,184	3.60%	9,004	3.47%
14	3,329	3.28%	1,500	3.34%	4,718	3.11%	3,661	3.43%	2,771	3.71%	7,588	3.61%
15	2,897	3.45%	1,303	3.43%	4,043	3.27%	3,160	3.55%	2,509	3.78%	6,511	3.74%
16	2,508	3.62%	1,174	3.50%	3,541	3.40%	2,735	3.66%	2,276	3.85%	5,710	3.85%
17	2,130	3.81%	1,030	3.58%	3,075	3.55%	2,345	3.78%	1,980	3.96%	4,908	3.98%
18	1,842	3.99%	861	3.69%	2,587	3.72%	1,927	3.93%	1,670	4.08%	4,194	4.11%
19	1,584	4.17%	711	3.81%	2,109	3.93%	1,621	4.06%	1,412	4.21%	3,507	4.26%
20	1,313	4.39%	577	3.94%	1,696	4.15%	1,363	4.19%	1,181	4.34%	2,908	4.42%
21	1,023	4.69%	479	4.05%	1,323	4.40%	1,069	4.38%	696	4.49%	2,328	4.60%
22	731	5.08%	385	4.19%	1,014	4.67%	801	4.60%	797	4.63%	1,797	4.82%
23	532	5.46%	303	4.34%	738	4.99%	600	4.82%	589	4.86%	1,281	5.10%
24	370	5.89%	207	4.57%	513	5.36%	429	5.08%	407	5.13%	871	5.42%
25	121	7.22%	76	5.19%	163	6.52%	161	5.83%	129	5.99%	305	6.30%

	B-1 Value	Portfolio Ranking	B-2 Value	Portfolio Ranking	B-4 Value	Portfolio Ranking	B-5 Value	Portfolio Ranking	B-7 Value	Portfolio Ranking	B-8 Value	Portfolio Ranking
Proxy Group of Eight Water Companies	$ 3,383	14	$ 1,152	16	$ 4,769	14	$ 3,961	13-14	$ 723	21-22	1,417	22-23
Carolina Water Service, Inc. of South Carolina	$ 57.21	25	$ 17.35	25	$ 57.21	25	$ 79.51	25	$ 21.47	25	48	25

Indicated Risk Premium	3.94%	1.69%	3.41%	2.46%	1.43%	1.34%

Sources of Information:
Duff & Phelps 2017 Valuation Handbook Exhibit B-1 through B-8
SNL Financial
Company Form 10-K

Exhibit No. ___
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